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FROM
B. P. JOHNSON,
STATE AG'L ROOMS,
ALBANY, N. Y.

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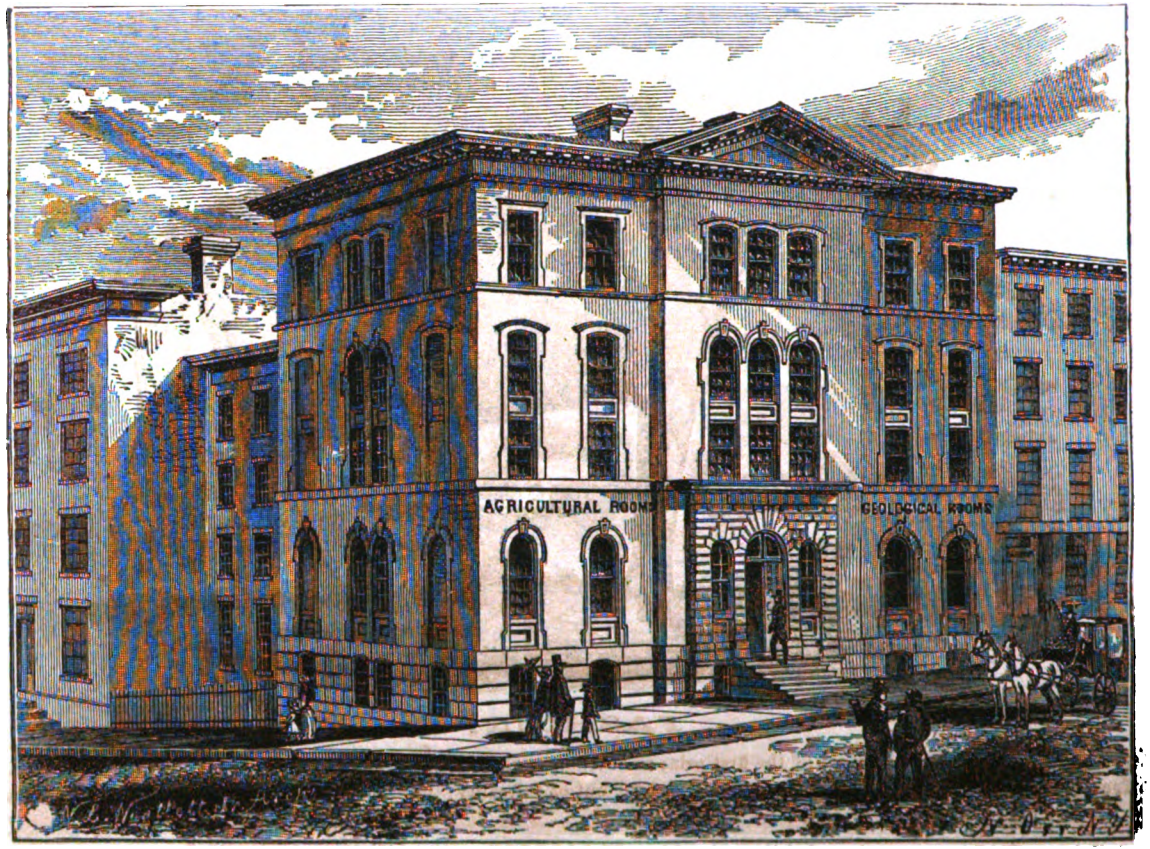

NEW STATE GEOLOGICAL HALL, ALBANY.

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TRANSACTIONS

OF THE

N. Y. State Agricultural Society,

WITH AN

ABSTRACT OF THE PROCEEDINGS

OF THE

COUNTY AGRICULTURAL SOCIETIES.

VOL. XIV.—1854.

ALBANY:
C. VAN BENTHUYSEN, PRINTER TO THE LEGISLATURE.
1855.

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NOTICE.

The Fourteenth Volume of the Transactions of the New-York State Agricultural Society is presented to the farmers of New-York, and it is believed it will be found at least equal to any which have preceded it. Many of the papers are of permanent value, and will aid the farmer in his efforts for improvement. In its preparation a vast amount of labor has been expended, and it is hoped the work will be found of such a character as will meet the approbation of those for whom it is specially designed. The year 1854 has been one of unusual severity to the farming interest of our State—the severe drouth unparalleled it is believed in our history, and the ravages of the wheat midge, caused a loss to the farmers which has been most severely felt, but which they have been enabled to bear, evidencing the improved condition in which they have been placed by their previous labors.

In this volume will be found the commencement of a work by Dr. Asa Fitch, Entomologist of the Society, on the insects injurious to vegetation, designed especially for the farmers and horticulturists of the State—and we shall be greatly disappointed, if it shall not be found to be one of the most valuable works which has been published on the subject. Dr. Fitch is continuing his labors, and we trust will be permitted to pursue them, until he shall have brought to notice every insect in our State whose depredations are injurious to the farmer, as well as those that are beneficial. He is admirably qualified for the work, and we hope his life and health will be spared to complete it. A most valuable work by the Hon. Geo. Geddes, of Onondaga, on "Rain, Evaporation, and Filtration," which bear the impress of the author's vigorous mind, and careful observation and research, will be read with interest and profit by the farmer. The essay on

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"Practical Husbandry," by Hon. Winslow C. Watson, is a work such as the farmer needs, and will prove of great usefulness to the farming interest of our country. An interesting article on "Agriculture," by W. P. Prentice, and the "Fruits of Berkshire," by Wm. Bacon, Esq., will be found deserving of notice. There are many other articles which will commend themselves to the careful reader.

The county reports are of more than usual interest and importance, and the success of the exhibitions which have been held, notwithstanding the unfavorable character of the season, shows the lively interest which the farmers take in these festivals, which annually call together the intelligent population in every county, where associations are organized.

As in former years, the subscriber has been most kindly aided by contributions from gentlemen in our own and other States, and he desires most gratefully to return his thanks to those who have assisted him in preparing this volume.

B. P. JOHNSON.

State Agricultural Rooms, *March*, 1855.

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NEW STATE GEOLOGICAL HALL.

The engraving of the new building for the accommodation of the Natural History Collection, and the New-York State Agricultural Society, accompanies this volume. It will be a very neat and handsome edifice, and will be completed so as to be occupied in 1856. The following description is furnished by Wm. L. Woolett, jr., the architect:

"The building is to be of 'pressed brick,' with freestone dressings to windows, &c.; with ashlar basement, and rusticated entrance, all of cut stone. The main building upon State-street, is 81 feet front and rear, and 50 feet 5 inches deep. The wing is 68 feet by 40, each four stories high. The basement story of the front part is to be for the accommodation of the *Taxidermist*, *Janitor*, *State Chemist*, heating apparatus, &c. The principal floor of the main building is devoted to the *Office* (27×17½) and *Library* (28½×27) of the State Agricultural Society, on the east of the main hall, and on the west to the Curator of the State Collection. The principal floor of the rear part will be used as a Lecture room, and room for meetings of the Society, 40×68, and 15 feet high, elevated a few feet above Lodge-street, and approached by a flight of stairs from the main building. The Hall above this Lecture room will be lighted in part by skylights, and will be surrounded by two galleries, and is to be used for the Agricultural Society's collection; the whole of the residue of the main building will be used for the State Collection of Natural History, Minerals, &c., and that portion on the *west* of the main entrance will be open from the first floor to the roof, and will have three galleries. That on the *east* side of the main entrance will be open from the second story floor to the roof, and will contain two galleries. All the galleries will be supported upon cast iron columns,

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with enriched capitals, and the fronts of the galleries protected by ornamental iron work, the whole finished in a neat and substantial manner—warmed by furnaces, and ventilated on the most approved principle—lighted by gas, and supplied with water—and will cost, when complete, forty thousand dollars."

The Society is under great obligations to the gentlemen comprising the agricultural committees of the Legislature, as well as many other members who interested themselves in securing the appropriations for this much needed improvement. This edifice will long remain as a memorial of their successful labors, and the farmers of New-York will ever hold in kind remembrance those who have aided in securing its completion.

The old State Hall was erected in 1797, and was an appropriate building for the objects to which it was devoted. It was desired by many that it should have been preserved and enlarged, but on examination, it was found unsafe to attempt additions to it, and the Commissioners of the Land Office, in pursuance of the act of the Legislature, ordered a new building to be erected.

The following is the inscription upon the marble tablet taken from the old building:

ERECTED FOR STATE OFFICES, A. D. 1797. JOHN JAY, *Governor.*	By GENL. PHILIP SCHUYLER, ABRAHAM TEN BROECK, DAVID HALL, JEREH. VAN RENSSELAER, *Commissioners.* WILLIAM SAUNDERS, *Architect.*

The new building:

ERECTED FOR GEOLOGICAL AND STATE AGRICULTURAL HALL, A. D. 1855. MYRON H. CLARK, *Governor.*	By HENRY J. RAYMOND, DEWITT C. LITTLEJOHN, E. W LEAVENWORTH, JAMES M COOK, E. G. SPAULDING, OGDEN HOFFMAN, JOHN T. CLARK, *Commissioners of Land Office.* W. L. WOOLETT, JR., *Architect.*

JOHN N PARKER, *Carpenter.*
JOHN BRIDGEFORD, *Mason.*
JOSEPH DAVIS & CO., *Painters and Glaziers.*
RICHARDSON & BARRETT, *Roofers.*

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AGRICULTURAL SOCIETIES.

We give the act for the incorporation of Agricultural Societies passed at the last session of the Legislature, which will enable societies to be far more easily organized than heretofore.

AN ACT TO FACILITATE THE FORMING OF AGRICULTURAL AND HORTICULTURAL SOCIETIES.

[Passed April 13, 1855, "three-fifths being present."]

The People of the State of New-York, represented in Senate and Assembly, do enact as follows:

§ 1. Any ten or more persons of full age, citizens of the United States, and a majority of whom shall be citizens of this State, who shall desire to form a county or town agricultural society in any county, town, city or village in this State, may make, sign, and acknowledge, before any officer authorised to take the acknowledgment of deeds in this State, and file in the office of the Secretary of State, and also in the office of the county in which the business of such society is to be conducted, a certificate in writing, wherein shall be stated the name and title whereby such society shall be known in law, the particular business and objects of such society, the number of trustees, directors, or managers to manage the same, and the names of such trustees, directors or managers thereof, for the first year of its existence.

§ 2. Upon filing a certificate as aforesaid, the persons who shall have signed and acknowledged such certificate, and their associates and successors, shall thereupon, by virtue of this act, be a body politic and corporate by the name stated in such certificate, and by that name they and their successors shall and may have succession, and shall be persons in law capable of suing and being sued, and they and their successors may have and use a

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common seal, and may change and alter the same at pleasure; and they and their successors by their corporate name, shall in law be capable of taking and receiving, purchasing and holding real estate for the purposes of their incorporation, and for no other purpose, to a sum not exceeding the sum of twenty-five thousand dollars in value if a county society, and one thousand dollars in value, if a town, village, or city society; and personal estate for like purposes, to an amount not exceeding ten thousand dollars, if a county society, and three thousand dollars if a town, village, or city society, and to make by-laws for the management of its affairs, not inconsistent with the laws of this State, or of the United States.

§ 3. Any person who shall pay into the treasury of said society such sum as the by-laws of said society shall require, of not less than ten dollars, may be a life member of said society, with all the privileges of an annual member thereof.

§ 4. Any person who shall pay into the treasury of said society annually a sum not less than fifty cents, as prescribed by the by-laws of said society, shall be a stockholder, and entitled to all the privileges and immunities thereof.

§ 5. The officers of said society shall consist of a president and at least of one vice-president, a secretary and treasurer, and six directors. The president and vice-president, secretary and treasurer, shall be elected annually, and the first year there shall be elected six directors: they shall be divided by lot into three classes, the first class to serve one year, the second class two years, and the third class three years, and at the expiration of each term there shall be elected two directors to serve three years, and all vacancies that may occur to be filled only for the term made vacant. The election of all officers to be by ballot of the stockholders or members The board of managers shall consist of the president, the first vice-president, secretary, treasurer, and six directors, a majority of whom shall constitute a quorum for the transaction of business, and it shall be the duty of said officers to manage the property and concerns of said society, as will best promote the interest of agriculture, horticulture, and the mechanic arts; and they shall hold annual fairs and exhibitions, and dis-

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tribute premiums to the best and most meritorious exhibitors in these several departments.

§ 6. There shall be but one county society in any one county in this State, nor shall there be more than one society in any town therein; but any two or three towns may join and organize a society for the same, but the organization of such society by an association of towns shall not be held to prohibit the organization of any town society or either one of such town societies.

§ 7. The said society may, in case the uses and conveniences thereof so require, upon application to the supreme court of the district wherein said county at the time of such application shall be situated, obtain the requisite order and power to sell from time to time, the whole or any part or parts of its real estate; the granting of such order to be in the discretion of the court, and such application to be made only when authorised by said society, at an annual meeting thereof, by a vote of not less than two-thirds of the legal members of said society present at such meeting, and notice of the intention to vote for such application having been published in three of the newspapers printed in said county once a week for three months preceding such annual meeting.

§ 8. The officers of any society organized under the provisions of this act, shall be jointly and severally liable for all debts due from said society contracted while they were officers thereof, provided a suit for the collection of the same be brought within one year after the debt shall become due and payable.

§ 9. The president, secretary, and treasurer of said society, shall annually, on or before the first day of February, make out and transmit to the Secretary of the State Agricultural Society at Albany, a statement of the transactions of said society for the year, giving a full detail of the receipts and expenditures thereof, with a list of premiums awarded, and to whom and for what purpose, and the same shall be subscribed and sworn to by said officers, before some person authorized to take the acknowledgment of deeds, as being a just and true statement within the spirit, true intent and meaning of this act.

§ 10. Every society formed under this act, shall possess the power and be subject to the provisions and restrictions contained

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in the third title, of the eighteenth chapter, of the Revised Statutes.

§ 11. All societies formed under chapter three hundred and thirty-nine of session laws, passed June eighth, one thousand eight hundred and fifty-three, are hereby declared to be as valid as if formed under this act for the year one thousand eight hundred and fifty-five, and may reorganize under this law at any time.

§ 12. This act shall take effect immediately.

STATE OF NEW-YORK, }
Secretary's Office. }

I have compared the preceding with the original law on file in this office, and do hereby certify that the same is a correct transcript therefrom and of the whole of said original law.

Given under my hand and seal of office, at the city of
[L.S.] Albany, this thirtieth day of April, in the year one thousand eight hundred and fifty-five.

A. G. JOHNSON,
Dep. Sec'y of State.

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CONSTITUTION OF THE NEW-YORK STATE AGRICULTURAL SOCIETY.

The style of this Society shall be "The New-York State Agricultural Society." Its objects shall be to improve the condition of Agriculture, Horticulture, and the Household Arts.

SEC. 1. The Society shall consist of such citizens of the State as shall signify in writing, their wish to become members, and shall pay on subscribing not less than one dollar, and annually thereafter one dollar, and also of Honorary and Corresponding members.

The Presidents of County Agricultural Societies, or a delegate from each, shall ex officio be members of this Society.

The payment of ten dollars or more, shall constitute a member for life, and shall exempt the donor from annual contributions.

SEC. 2. The officers of the Society shall consist of a President, eight Vice Presidents, one to be located in each Judicial District; a Recording Secretary, a Corresponding Secretary, a Treasurer, an Executive Committee, to consist of the officers above named, and five additional members, and five of the Ex-Presidents shall be ex officio members of the Executive Committee, and these five shall consist of the five Ex-Presidents whose term of office has last expired, of whom three shall constitute a quorum; and that the Ex-Presidents of the Society, not members of the Executive Committee, shall constitute a Board of Councillors, to which may be referred, for consultation and advice, all questions that may from time to time arise, and in the decision of which the Society may in any manner be interested; and a General Committee, the

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members of which shall be located in the several counties, and be equal to the representations in the House of Assembly.

SEC. 3. The Recording Secretary shall keep the minutes of the Society. The Corresponding Secretary shall carry on the correspondence with other societies, with individuals, and with the general committee, in the furtherance of the objects of the Society.

The Treasurer shall keep the funds of the Society, and disburse them on the order of the President or a Vice President, countersigned by the Recording Secretary, and shall make a report of the receipts and expenditures at the annual meeting in January.

The Executive Committee shall take charge of and distribute or preserve all seeds, plants, books, models, &c., which may be transmitted to the Society; and shall have also the charge of all communications designed or calculated for publication, and so far as they may deem expedient, shall collect, arrange, and publish the same in such manner and form as they shall deem best calculated to promote the objects of the Society.

The General Committee are charged with the interests of the Society in the counties in which they shall respectively reside, and will constitute a medium of communication between the Executive Committee and the remote members of the Society.

SEC. 4. There shall be an annual meeting of the Society on the second Wednesday of February, in the city of Albany, at which time all the officers shall be elected by a plurality of votes and by ballot, with the exception of the General Committee for the counties, which may be appointed by the Executive Committee, who shall have power to fill any vacancies which may occur in the officers of the Society during the year. Extra meetings may be convoked by the Executive Committee. Fifteen members sha l be a quorum for the transaction of business.

SEC. 5. The Society shall hold an Annual Cattle Show and Fair at such time and place as shall be designated by the Executive Committee.

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SEC. 6. This Constitution can be altered by a vote of two-thirds of the members present at any annual meeting, upon one year's previous notice in writing.

STATE AGRICULTURAL ROOMS,
February, 1855.

I certify the above to be a true copy of the Constitution of the New-York State Agricultural Society.

B. P. JOHNSON,
Corres. Secretary.

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LIFE MEMBERS, 1855.

BEEKMAN, J. P., Kinderhook.
BELL, THOMAS, Mott Haven.
BUELL, WILLIAM, Rochester.
BECAR, NOEL J., New-York.
BROWN, LEWIS G., Westchester.
BOUGHTON, CHAUNCEY, Half Moon.
BOWEN, HENRY C., Brooklyn.
BURKHALTER, CHARLES, New-York.
CAMPBELL, WM. BAYARD, New-York.
CLARKE, GEORGE, Springfield.
CLARKSON, AUGUSTUS, Potsdam.
CORNING, ERASTUS, Albany.
CORNING, ERASTUS, Jr., Albany.
COREY, JOHN A., Saratoga Springs.
COLEMAN, ROBERT B., New-York.
CROCKER, DAVID, Jr., New-York.
CLAFFLIN, HORACE B., Brooklyn.
CHESEBORO, E., Guilderland.
DELAVAN, HENRY W.,* Ballston.
DELAFIELD, JOHN,* Oaklands.
DICKEY, GEORGE, New-York.
DINSMORE, WM. B., New-York.
EARLE, MORRIS, New-York.
FELLOWS, JOSEPH, Geneva.
FOSTER, H. TEN EYCK, Lakeland.
FINLAY, J. BEEKMAN, Saratoga Springs.
FAILE, EDWARD G., New-York.
FAILE, THOMAS H., New-York.
FAILE, EDWARD, West Farms.
FAIRBANKS, THADDEUS, St. Johnsbury, Vt.
FAIRBANKS, ERASTUS, St. Johnsbury, Vt.
GEDDES, GEO., Fairmount.
GREIG, JOHN, Canandaigua.
GLENN, W. W., Baltimore.
HUNTINGTON, BENJ. N., Rome.

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HARTSHORNE, GEORGE, Rahway, N. J
HAVILAND, ISAAC E., Hempstead Branch
HAMILTON, DAVID, Watervliet.
HAIGHT, EDWARD, Westchester.
HUNT, WILSON G., New-York.
HERRICK, ELIAS H., New York.
HERRICK, JOHN S., New-York.
HAROLD, JOHN, Hempstead.
HOLMES, A. B., New-York.
JOHNSON, BENJ. P., Albany.
JACKSON, JOHN C., New-York.
KELLY, WILLIAM, Rhinebeck.
KIRTLAND, B. B., Greenbush.
LE RAY DE CHAUMONT, J.,* Le Raysville.
LENOX, JAMES, New-York.
LIVERMORE, CHARLES F., New-York.
LIVINGSTON, EDWARD P.,* Clermont.
LEE, JOHN R. Buffalo.
LUDLOW, WM H., Sayville.
LINKLAEN, LEDYARD, Cazenovia.
LAWRENCE, EDWARD A., Bay Side, L I.
LANDON, WM., Albany.
McINTYRE, ARCHIBALD, Albany.
McINTYRE, J. McDONALD, Albany.
MARVIN, JAMES M., Saratoga Springs.
MORRIS, LEWIS G., Mt. Fordham.
MORRIS, FORDHAM, Mt. Fordham.
MORRIS, FRANCIS, Mt. Fordham.
MUNN, SAMUEL, Mott Haven.
NORTON, ROBERT, New-York.
ODELL, WM. T., Ballston.
OTIS, H. G.
PATRICK, M. R., Sacketts Harbor.
PRENTICE, EZRA P., Albany.
PLUMB, JOSIAH B., Albany.
PHELPS, THOMAS W., New-York.
PEET, HARVEY P., New-York.
ROTCH, FRANCIS, Morris.
ROTCH, FRANCIS M., Morris.
RUST, PHILO N.,* Syracuse.
ROBINSON, HENRY, Newburgh.
RICHARDSON, THOMAS, West Farms.
REED, ALMET, New-York.
ROGERS, HENRY W., Buffalo.
RATHBUN, L. W., Springfield.

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SAXTON, C. M., New-York.
SEWARD, WM. H., Auburn.
SEYMOUR, HORATIO, Utica.
SHERWOOD, JOHN M., Auburn.
STETSON, CHARLES A., New-York.
SPENCER, LORILLARD, Westchester.
SPINNER, JOHN D., Herkimer.
STEVENS, E. R., Saratoga Springs.
SHEAFE, J. F., Dutchess.
SUYDAM, HENRY, Jr., New-York.
SMITH, N. EVERETT, New-York.
SMITH, DANIEL DRAKE, New-York.
SHERMAN, BENJ. B., New-York.
SANDS, A. B., New-York.
THOMPSON, SAMUEL L., Setauket.
TOWNSEND, JOHN,* Albany.
TUCKER, LUTHER, Albany.
THORNE, JONATHAN, Washingtonville.
TITUS, JAMES H., Malone.
TABER, SAMUEL T., Chestnut Ridge.
THORNE, EDWIN, New-York.
THORNE, SAMUEL, Dutchess.
VAIL. GEO., Troy.
VAN RENSSELAER, STEPHEN,* Albany.
VAN RENSSELAER, STEPHEN, Albany,
VAN RENSSELAER, WM. P., Albany.
VAN PELT, HENRY, New-York.
VAN RENSSELAER, ROBERT H., Morris.
WADSWORTH, JAMES,* Geneseo.
WADSWORTH, JAMES S., Geneseo.
WADSWORTH, WM. W.,* Geneseo.
WELLS, EDWARD, Johnstown.
WHITE, HOLLIS, Niagara Falls.
WARD, JOHN, New-York.
WATSON, WILLIAM, West Farms.
WAINWRIGHT, C. S., Rhinebeck.
WOLFE, GEO. DAVID, New-York.
WELLS, HENRY, Aurora.
WYKOFF, S. S., New-York.
WHITLOCK, BENJ. N., West Farms.
WILLETS, ROBERT, Bayside, L. I.
WETMORE, PROSPER M., New-York.
WEED, WILLIAM W., Buffalo.
YELVERTON, ROBERT, New-York.

* Deceased.

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OFFICERS FOR 1855.

President,

SAMUEL CHEEVER, Saratoga.

Vice Presidents,

1st district, JOHN C. JACKSON, New-York.
2d district, ISAAC E. HAVILAND, Hempstead-Branch, Queens county.
3d district, GEORGE VAIL, Troy, Rensselaer county.
4th district, JOHN McDONALD, Salem, Washington county.
5th district, JOHN A. SHERMAN, Rutland, Jefferson county.
6th district, SANFORD P. CHAPMAN, Clockville, Madison county.
7th district, DEWITT C. VAN SLYCK, Lyons, Wayne county.
8th district, WILLIAM W. WEED, Buffalo, Erie county.

Corresponding Secretary,

B. P. JOHNSON, Albany.

Recording Secretary,

LUTHER TUCKER, Albany.

Treasurer,

B. B. KIRTLAND, Albany.

Executive Committee,

EDWARD G. FAILE, New-York.
ANTHONY VAN BERGEN, Coxsackie, Greene county.
WINSLOW C. WATSON, Port Kent, Essex county.
E. C. FROST,* Catherine, Schuyler county.
CHARLES MORRELL, Ludlowville, Tompkins county.

* In place of THEODORE S. FAXTON, Utica, Oneida county, declined.

Ex-Presidents, ex officio Members,

E. P. PRENTICE, LEWIS G. MORRIS,
HENRY WAGER, WILLIAM KELLY.

Prof. EZRA CARR, *Chemist.*
ASA FITCH, M. D., *Entomologist.*

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State of New-York.

No. 145.

IN ASSEMBLY, MAR. 23, 1855.

COMMUNICATION

From the Corresponding Secretary of the New-York State Agricultural Society.

STATE AGRICULTURAL SOCIETY,
March 23, 1855.

To the Hon. D. W. C. LITTLEJOHN,
Speaker of the Assembly:

In pursuance of the acts of the Legislature for the promotion of Agriculture, I present herewith the annual report of the New-York State Agricultural Society, with the proceedings of the Executive committee, and abstracts of the reports of County societies for 1854.

Very respectfully yours,
B. P. JOHNSON,
Cor. Secretary.

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TRANSACTIONS

OF THE

New-York State Agricultural Society.

Report of the Executive Committee for 1854.

TO THE LEGISLATURE OF THE STATE OF NEW-YORK.

The Executive Committee of the New-York State Agricultural Society, in pursuance of the statute for the encouragement of Agriculture,

RESPECTFULLY REPORT:

That the past year has been one in which the beneficial effects of the State and County organizations have been most apparent. The reports which are herewith presented give most undoubted evidence that great improvements are being made in most of the counties of the State. The attention which is given to drainage, more thorough cultivation of the soil and careful rotation of crops, reflects, in the highest degree, credit upon the intelligence of our farmers. The increased products of the dairy show, that the efforts which have been made in this direction by the State Society are being responded to satisfactorily in most of the dairy districts of the State. It is gratifying to be assured that the standard of butter and cheese is constantly rising, and the quantity of inferior manufacture is decreasing. The improvements in the stock of our State, which has been progressing steadily since the first exhibition of the Society, is most encouraging. Many of our spirited citizens and members of this Society have been engaged in the importations of choice cattle, sheep and swine, and it is a matter of just pride to our State to be assured that they have not been without their reward, and that from every part of

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our Union, from Canada, New Brunswick, Cuba and the Sandwich Islands, orders are received for the choice stock raised by these enterprising gentlemen. In our own State, from a large majority of the counties, we are receiving the most marked assurance of the value of the introduction of improved stock, and the various breeds which have been introduced, adapted as they are to different portions of our State, are being disseminated with manifest advantages to the dairy interests of the State, as well as to the grazing districts where cattle are fattened for the market. That the State has added to its wealth large amounts by this improvement in our stock cannot be questioned. Those who have patiently and faithfully labored to secure this result have the satisfaction to know that prejudices have been overcome, and that while others have derived great advantages from their enterprise and liberality, they themselves are not without, it is believed, a fair return on their investments.

The same remarks are applicable to a considerable extent to the introduction of horses, sheep and swine.

Drouth.—The past season has been one of unusual character. A drouth which, for its extent and severity, has seldom been equalled in our country, has fallen with crushing force upon the agricultural interests. At an early day measures were adopted by the Secretary to obtain reliable information as to the extent of the diminution of the crops of the State from this source, and the returns received show that the crops from this source alone, with the exception of wheat, grass and potatoes, have been diminished from 30 to 50 per cent.

(*Wheat midge.*)—The wheat crop has suffered most severely from the ravages of the wheat midge (*Cecidomyia tritici*). From the returns which have been received it is safe to say that the wheat crop does not exceed half a crop. The white wheats have suffered most. The Mediterranean variety has escaped in most sections where sown. This is a red variety, and from its habits of early ripening, probably owes its escape from the ravages of this destructive insect. This wheat is not a favorite with millers, but it may be that the question for our wheat growers, for a time at

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least, will be this variety or none, unless some new variety, equally safe from the ravages of the fly, shall be discovered. Those who have for years used the flour from this variety of wheat approve of it, but its value in market is less than the white wheats. The great injury which has been done to the wheat crop during the year 1854 by the wheat midge (frequently called the weevil) has alarmed our farmers, and many of them are abandoning the culture of wheat. The importance of the entomological investigations which are being made under the directions of the Society by Dr. Asa Fitch will be seen in connection with this subject.

In 1850 the product of wheat in this State was 13,121,498 bushels, and upon the supposition that an equal number of acres were under cultivation, and the yield only the same, under favorable circumstances, in 1854, (though it is entirely satisfactorily shown by the returns we have received that the crop would have been considerably larger on the average had it not been for the ravages of the midge), the damages sustained from this destructive insect has been a diminution of from 30 to 40 per cent of the crop, but estimating it at $\frac{1}{3}$ only (though from the returns received from different sections of the State it is entirely probable that the damages are nearer 40 than 30 per cent), it will give, at the average price of wheat $2 15 for 4,373,499 bushels, $9,403,012.85, a sum truly appalling from the ravages of so insignificant an insect as this.

The examination now making under the direction of the Society by that distinguished entomologist, Asa Fitch, M. D., of the insects injurious to vegetation, it is hoped will shed some light upon this subject, and the report of that gentleman will contain suggestions as to arresting its ravages, which, if only partially successful, will most amply repay the outlay—that an examination of all the insects in the State will require to complete their history and character, which as yet have never received any adequate attention. It may with propriety be said that we know as yet but few of the insects which are preying yearly upon the crops and fruits, and from no other cause ordinarily do the farmers and the horticulturists experience so much damage as from the ravages of the insect tribe. The Legislature at its last ses-

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tion appropriated a thousand dollars to this object, and Dr. Fitch has been engaged during the summer in investigating the insects which are injurious to fruits and vegetation, and his report, which is herewith presented, will show the industry and zeal with which he has pursued his investigations, as well as the ability which he has devoted to the subject. We trust that the appropriation will be continued, satisfied that no expenditure of money can bring to the people more direct and manifest advantages than this.

Draining and Irrigation.—The correspondence of the Society has elicited much valuable testimony on the advantages of draining, especially during the drouth of the past season. While it is not pretended that draining will of itself entirely protect the land from the effects of drouth, especially as severe as that of the past season, yet the testimony of farmers in different sections of the State is almost unanimous "that drained lands have suffered far less from the drouth than undrained," and in several instances, on contiguous pieces of land, the drained has given a fair crop of wheat, while the crop upon the undrained was an entire failure. We are not surprised at this, as the necessary result from thorough draining would be to give far more food for the plants, enabling them by increased vigor much longer to resist the effects of drouth. This is the experience of those in this country who have paid the most attention to it, and is also the united testimony in Great Britain and Ireland, where more attention has been paid to it than in any other portion of the world. We deem it all important, therefore, to press this matter upon the attention of farmers, believing that a much more extensive system of drainage should be carried out in this State, and that it would conduce largely to the increase of our crops, and at the same time render the land far more easily to withstand the effects of drouth, and to escape almost entirely from the injurious effects of moisture.

The following extract from the Jefferson county report is one of the many evidences of the value of draining: "This system of under draining, so frequently urged upon us, has been carried out to a demonstration, and its benefits are being realized by our in-

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dustrious and persevering neighbor, Mr. Jonas P. Thompson, upon his farm near Talcott's corners, in the town of Watertown. He has, by means of a blind drain, 180 rods in length, converted a cedar swamp of twenty-five acres, covered with water a greater portion of the year, unfit for pasturage even, and perfectly worthless for farming purposes, into a fertile field, twelve acres of which have grown heavy crops of grain this season, and upon eight acres now stands the best crop of corn seen by your committee during their tour. Thirteen acres of this swamp was in the process of being cleared from stumps at the time of our visitation. Thus has this swamp been changed from a nuisance upon a farm into its most valuable and productive portion, and is a demonstration of what skill and perseverance will accomplish."

As further illustrating the advantages of draining, we give the following extract from the latest published work in Scotland, *Morton's Cyclopedia of Agriculture:*

"Were we to ask any intelligent Scotchman what improvement in farm practice he considered had conduced most to the advancement of agriculture in Scotland during the present century, he would at once unhesitatingly answer, the introduction of thorough draining by the late Wm. Smith, of Deanston.

"The physical aspect of the country has been entirely altered by draining. Instead of arable cultivation being confined to the naturally dry portions of the farm, as it was during the last century, it is now extended to bogs, marshes and moors, and has probably quadrupled the arable acres of the country; while the produce per acre has been likewise increased to an extent of which we can form some idea from the fact that from 20 to 25 bushels of oats were then considered a fair average crop, (now from 60 to 80 bushels.)

"The second quarter of the present century must ever be memorable in the history of Scottish agriculture for the immense amount of draining executed upon the Deanston principle, for there is scarcely a single farm but what it was applied to, either to a greater or less extent. There are no data by which the

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number of acres drained on the new system can be ascertained; but taking only one-third of the arable lands of Scotland, which amount to about five and a half millions of acres, as an approximation, and £5 10s. (about $25) as the average cost per acre, then there must have been expended during the last quarter of a century no less sum than nine millions sterling (about 45 millions of dollars). The pecuniary profits derived from draining have been variously estimated from 15 to 25 per cent per annum upon the outlay, so that if we take the average as somewhat near the truth, the value of the additional product from this source alone will be nearly two millions yearly, equal to an additional permanent capital of forty millions at 5 per cent added to the wealth of the country. Were the whole land of the United Kingdom thoroughly drained, how immensely would its wealth be increased, and how insignificant would be the produce of the gold diggings compared with that derived from the teeming corn fields within the boundaries of her own shores."

Irrigation.—The importance of giving more attention to irrigation is being appreciated. The address of our late president called the subject before the public, and the returns received at the rooms of the Society show that we have facilities throughout the State that could be brought into requisition at comparatively little expense, to the manifest advantage of the farming interest. A very intelligent farmer, in urging this subject upon the attention of the Society, remarks: "I am satisfied that not one farmer in a thousand throughout the United States knows but very little of the advantages of irrigation. It is now about four years since that it occurred to me that I could do it to advantage upon my farm; a stream of water and about thirty acres of my farm being convenient and suitable for that purpose. It is sufficient to say that I lost no time in making the experiment, and the consequence is, that the yield of my grass and hay crop from these lands has been more than doubled, and much of it upon the gravel soil four times told more than ever before. I have learned much by experience, how and when to apply the water, and thereby have increased the quantity of the grasses, if not improved them to a

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considerable extent. The irrigated lands improve more and more every year, without any expense but the water. From my irrigating pond I get about two hundred loads of wash or sediment annually to put upon my uplands. This, with a peat swamp and my barn yard manures, answering for me instead of guano, &c. My doctrine and practice is, to husband and apply the manures upon my own farm, as most economical and profitable, and which can always be depended upon."

The Secretary having attended the annual fair in the county where the farm referred to is situated, had an opportunity of seeing the vegetables, fruits and grain raised upon it; and it is but just to say, as was said at the time to the farmers present, that no more luxuriant and healthful products had been seen in any portion of our country. A like application, and like attention and care, will secure equal results.

We would direct attention to the reports from the different County societies, which show most clearly the advantages which have resulted from draining; and these reports also show that increased attention is being given to various other improvements, which are resulting in increased products to the farmer. It is among the most encouraging signs of the times, that the number of farmers who are seeking for information how they can best increase the productiveness of the soils is steadily increasing—the number during the past season who have made special application at the rooms of the Society being probably double those of any preceding year. While this has added largely to the labors of the office, it has brought with it the most gratifying assurance that our labors as a Society have been appreciated, and it will be still more encouraging if the present year shall add a still larger number to those who desire information how they can best advance the interests of agriculture.

Manures.—The question of manures for the farm is one of great interest and importance to the farmer. The inquiries which are made as to special manures which are before the public, with high encomiums in many cases of their extraordinary effects, are very numerous. Farmers are desirous to ascertain whether it is safe

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for them to venture the trial of these. As a general rule, it probably is best for the farmer, if the ordinary manures of the farm, carefully preserved and discreetly applied to the proper crops, are not sufficient for his wants, and if peat and marl are not within his reach, to make trial of such other aids as he may find, in limited quantities at first, so as to be sure that the proffered aid will be secured. But the difficulty is, these manures are not all of them what their compounders profess them to be; and it is not safe to venture largely upon their use until their qualities are carefully ascertained by analysis. The adulterations of guano and many prepared manures in Great Britain, have become so flagrant that no discreet farmer there will purchase without an analysis of the manure offered, taking from different portions of it, so as to be assured that the samples analysed are fair averages of the whole—for it is known there, and so is it in this State, that very often the samples analysed bear no appreciable relation as to fertilising powers whatever to the whole quantity offered for sale. The necessity of an agricultural institution, where we could have all these various preparations analysed and carefully tried, under the direction of a competent man, entirely disinterested, upon various soils and crops, is what is most needed; and we are not without hope that we shall ere long in this State be favored with such facilities as will redound to the advantage of the farmer, and afford efficient aid in advancing this great interest. While we have full confidence in the value of our agricultural associations, we feel assured that they alone cannot accomplish all that is desired. We must have the institutions where instruction can be given, such as the farmer wants, and where experiments can be made that will enable him, without hazard, to pursue a course of improved husbandry that will redound to his own personal advantage, and to the increased prosperity and wealth of the State.

It is gratifying to find in the reports, and other papers presented before the Society, that our farmers are directing attention to this subject—are making careful experiments with guano, super-phosphate, &c., to ascertain whether *they will pay*, for this, after all, is the question for the farmer to settle. A given manure may give a large increase in the crops, and statements published

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of the claimed success may lead others into an expenditure which is never returned, but makes demand upon the farmer for a large outlay—it may be to repay the loss.

* The following experiments, made by one of our most promising farmers, evince much forethought, and its publication in our Transactions, with other experiments, will doubtless attract the attention of farmers, and we would hope lead to like care in making experiments:

"An experiment, upon a small scale, was instituted with guano, manufactured super-phosphate of lime, plaster and ashes. Soil tenacious, lime-stone loam, old sod of red top, june grass and white clover. Produce, 2,000 lbs. of hay per acre naturally.

Guano applied at the rate of 400 lbs. per acre, as top dressing, increased the crop to	4,080 lbs.
Super-phosphate, 400 lbs.,	3,040 "
Plaster, 800 lbs.,	2,480 "
Ashes, unleached, 26½ bushels,	3,840 "

Taking the above experiment as a basis of action, the increase over the natural yield (for a single year) would not warrant the application of either of these fertilizers, except the ashes.

The expense of each application was as follows:

400 lbs. Peruvian guano,	$10 00
400 lbs. super-phosphate,	10 00
800 lbs. plaster,	2 60
26½ bush. ashes,	3 31

The average cost of a ton of hay, secured in barn or stack, by the ordinary mode of producing and gathering, in the county where this experiment was made, is estimated at $5.00. The cost of each additional ton to the natural yield would be:

Of that produced by	guano,	$9 60
"	super-phosphate,	19 22
"	plaster,	10 83
"	ashes,	3 60

* Farm statement of G. W. Coffin, of Dutchess county.

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I have long been of the opinion that plaster would yield better returns when applied to new land, or to old land newly seeded, than upon old sod. Ashes are like the poor man's opinion of turkey, "always good." Guano and super-phosphate cost too much to use on lands of medium fertility, or that are yielding fair crops. But on worn out lands the case may be entirely different. A table-spoonful of guano used in the hill for corn, by mixing with the earth, which was dry, killed it. Same amount of super-phosphate had no apparent effect. Plaster increased the growth greatly. Ashes were too strong, and cauterised the sprouts."

We desire to call especial attention to this method of doing business. Count the cost and the return before you venture largely into the use of any special preparation of manures.

To make this experiment, however, complete, it should be carefully followed out, and ascertained for a term of years what effect the prepared manures had upon the succeeding crops, as it may well be that in a few years the *continued increase* may be such as to render these applications profitable to the farmer, though when ascertained only by a single year, as in this case, the results may be otherwise.

Location of the Fair.—At the last annual meeting a very able report favorable to the location of the fair "at two convenient and accessible points, eastern and western, the exhibitions to be held alternately in each," was made by the committee appointed the previous year. This is a subject deserving the serious attention of the Society; and as an amendment has been proposed to the constitution, in order, if adopted, that the Executive committee may have power to locate in one or more places for a term of years, it is thought advisable to notice this subject in our report. Under the present system the Society has been most prosperous; fourteen fairs have been held, and the beneficial effects of these annual exhibitions have been felt throughout the entire State. The object of the Society is to do good, and to manage its operations so that it shall favorably affect the farming population to the greatest possible extent. This it has heretofore supposed would be better secured

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by holding the fairs alternately in different sections of the State. It cannot be doubted that a new impulse has been given to the agriculture of those portions of the State where the fairs have been hitherto held, and that a larger number of persons have probably been interested in the subject of agricultural improvement than would have been, had the fairs been located in the beginning at one or two places.

Difficulties, however, have arisen in consequence of this migratory system. For several years the exhibition of articles, as well as the attendance of exhibitors and others, has been such as to demand largely increased accommodations, and the expenses have in consequence been very materially enlarged; and there are now but few localities where the necessary fixtures and expenses for a single year can be provided, without serious difficulty. Exhibitors are demanding from the Society a more permanent set of fixtures than has usually been provided, in order that their articles may be protected; and an opinion has been gaining ground that to secure these accommodations will require a location permanently, or for a term of years, so as to diminish materially the expenses of erections. Certainly this demand of exhibitors should be met by the Society as far as practicable. It is but reasonable that those who present valuable stock, implements, dairy products, fruits, &c., should be protected, and that the accommodations should be such as to be reasonably satisfactory.

The location of the late fair at New-York, in accordance with the vote of the Society, led the Executive committee to adopt from necessity a new system of arrangements for the exhibition. There were no persons in New-York who felt any particular personal interest in the fair, as is the case in inland towns, who would take upon themselves the labor and responsibility of preparing the grounds, arranging the buildings, supplying the stock with food, furnishing accommodations for judges and visitors, and securing clerks and attendants upon the grounds during the fair. The Executive committee, from the best data in their possession, estimated the probable expenses for the proper and satisfactory ar-

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rangement of the grounds and buildings, with the other expenditures necessary, and the amount they required was raised. A committee, composed of Lewis G. Morris, Edward G. Faile and Thomas Bell, was entrusted with the details, and carried them out in a manner most gratifying to the Executive committee and to the public at large.

A working plan for the enclosures and the buildings was prepared, which has been lithographed, and can be adapted to any other locality, from which the whole of the fixtures may readily be made. The buildings were much more secure and perfect than had before been adopted; ample and satisfactory stalls were prepared for cattle, sheep and swine; and the whole arrangement was most creditable to the gentlemen who superintended the work, as well as to the Society.

An editor of one of the leading agricultural journals of the west, who has attended most of the fairs held in this country, remarked, in his account of the fair, that "The management of the New-York show we think was the best we have ever seen in this country. The grounds and buildings were spacious and well arranged; the cattle sheds especially were a decided improvement on the usual practice, in being placed in open grounds, so that spectators could see the head as well as the hind parts of the animals, if they desired. But what we desire especially to commend is the liberality and forethought that was displayed in providing for the convenience of the awarding committees, "the press," and visitors from other States. Besides spacious rooms and stationery for their use, refreshment tickets were freely distributed to them, and a cordial and gentlemanly hospitality extended."

We doubt not this account meets the views of a great majority of those who were present at this interesting exhibition of the Society.

The cost of these erections and the fixtures, so as to present the fair grounds ready to be occupied, was about $5,000. It is believed that grounds equally well arranged cannot be prepared at much less expense than this. The expenses of forage for stock, water, police, clerks, superintending, &c., are to be added to this.

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The Executive committee do not deem it within their province to express any opinion as to the expediency of permanent locations, as the subject is properly before the Society, and to the Society it belongs to give an expression upon it.

Grasses.—The Executive committee ordered a variety of grass seeds for trial, and the same were distributed last winter. The severe drought of the past season has prevented a fair trial of the seeds, but it is hoped that sufficient was reserved for sowing in the fall, so that we may expect during the next season returns that may be useful.

New buildings for the society.—The application of the Society for more commodious arrangements for their museum and library, and rooms for meeting, lectures and laboratory, which had been presented for several years, was favorably received by the Legislature at its last session, and an appropriation of $25,000 was made for that purpose. Plans were prepared by Mr. Woolett, the architect selected by the Commissioners of the Land Office, which contemplate a new story to the main building, and two wings in the rear, of three stories each, with a basement, which will give ample room for the Society, as well as for the Natural History collection. It will be the duty of the Society as soon as the building is in readiness, which it is expected will be by next October, to secure as speedily as may be a full collection of implements or models of the same, now in use, as well as those heretofore in use in our State and country, that we may present to the farmers and others the evidence of what we once were, and what we now, by improvement, are in this department of agriculture. In addition to these, a complete collection of grasses, grains, &c., will be procured, so as to exhibit not only the grain and seeds, but specimens of the plants and grasses dried. The insects also which are most common will be arranged, correctly labelled with the common name by which they are generally known, with the plants, leaves and twigs upon which their depredations are most commonly committed; so that the visiter may at once see what his enemies are

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doing, and may also learn how he may best avoid their ravages. An opportunity also will here be had for the display of choice and rare living plants, and the method of culture may here be learned for the benefit of the public at large. We would call upon the farmers, implement manufacturers and mechanics to aid us in filling this building, in a manner that will be creditable to our State and to our country.

Fourteenth Annual Fair.—The experiment of holding an annual fair of the farmers and mechanics of the State in the great metropolis of our State and country has been tried. The circumstances under which the fair was held were not of the most favorable character. For nearly two whole days the rain was constantly falling, and prevented the attendance both of exhibitors and visitors. The last two days were favorable, and the attendance was large, and the interest continued up to the closing of the exhibition. The exhibition in many of its departments was of a very high character, and we think has never been excelled, while, taken as a whole, it was not equal to some of the previous fairs of the Society. Various reasons have been suggested for this, but we believe that the principal reason was the location itself, in the midst of a populous city, whose inhabitants have their daily concerns constantly engrossing their attention, and are not readily affected by anything out of their usual course of affairs. Being at the extreme limit of the State, the agricultural districts, which usually contribute very largely to the shows, were so far distant that their contributions were limited. It was hoped that the united efforts of the American Institute, New-York Horticultural Society, and that of the State Society, would have secured a fair exhibition at least from the city; but in this we were disappointed, as the miscellaneous department, which usually is filled mainly from the immediate vicinity of the exhibition, was far less than at the fairs held at Albany, Utica, Syracuse, Rochester or Buffalo. Still it was an interesting exhibition for the first time held in the great metropolis of our State, nor could any occurrence in its annals have been more appropriate than that those who in the first city of the new world concentrate their trade, their manufactures and their

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commerce, should have an opportunity to see for themselves that to the labors of the farmers, the great producers, they owe the origin of their wealth. The city of New-York is deeply interested in the prosperity of the New-York State Agricultural Society, since no impetus can be given to the labor of the agriculturist but that in its increased activity the city will reap a large reward. It was eminently desirable that the fair should once be held amid the busy throngs of the commercial capital, and its incidents will be prominent in the history of the year, since amidst all the conventions that came thither, that of the farmers of New-York seemed by right to hold the first place.

The location allowed by the munificence of the city authorities was Hamilton square. It was at a greater distance from the dense population than comported with the convenience of the vast crowds, who, had the fair been held nearer them, would have been attracted to it; but this might have been rendered powerless against the success of the exhibition had the means for transportation been well arranged by the companies whose railways passed the square. Unquestionably there were thousands of the citizens of New-York to whom it would have been an occasion of great satisfaction to have been present, had they not been sensible of the deficiency in the means of transit. But with all the disadvantages, the location had its fitness, which must have impressed the reflecting observer. Here were the beginnings of the great city, where the enormous labor of the builder and the architect were forcibly shown. Here the field ceased, and the street and square commenced, and here the tents of the State Agricultural Society emblemed the strong fact, that with the success and the advance of agriculture comes onward the career of improvement of whatever gives permanence to the prosperity of the State.

It was a gratifying circumstance in the history of this fair to observe how large the representation of those citizens of other portions of the State, who for a series of years have cheered, encouraged and sustained the Society—gentlemen who have filled its offices of trust, and who have rendered good service, and who still lend their efforts to make its fairs successful, and to advance

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its power to render the labor of the farmer more profitable, as well as to elevate him in his profession. And from the city came the intelligent merchant, who saw the progress in agriculture in all its varied branches, rendering more ample the resources for an enlarged commerce. The inquiring and acute mechanic, examining and judging for himself of the machinery which was on exhibition, and determining with the sagacity of the inventive American whether it seemed likely to relieve or benefit the hard working agriculturist. The avenues through the spacious grounds, whenever the varying weather permitted, were thronged with crowds, who, in the various halls, in the fruit department, in the dairy, in the grain, in the cattle stalls, in the trial rings for horses, found abundant remuneration for their presence. The spectacle presented by the grounds, when the fair was in its height of movement, crowded with anxious visitors, cannot easily be forgotten.

In no other year had there been a finer display of stock; not only from the richly cultivated fields of the adjoining counties were these brought, but from distant sections of the State, west and north, with an enterprise that indicated the earnestness with which our people are pursuing this most important branch of the farmer's pursuit. It was especially gratifying to witness the gathering of the most improved varieties of stock, where the improvements from the earliest years of the Society's efforts could be traced by so many who had witnessed the beginning of the severe labor and pecuniary sacrifice by which the best blood of the old world had been brought into our own State for the benefit of our own farmers.

Cattle.—The cattle department was equal, if not superior, to any previous one of the Society. This was particularly so in the class of Short-horns, Devons, Ayrshires, and grade cattle. In the Short-horn class there was a large number of exhibitors from various portions of the State, and several imported animals were shown, of great excellence, in a separate class. The Devon class was also one of rare excellence. There were several exhibitors in this class, of both imported and American bred animals, many

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of which were esteemed among the finest specimens of this breed. The Ayrshire class was the best and largest ever exhibited in this State, and has given a most favorable impression of this dairy stock. Of Herefords the exhibition was very limited. Jerseys or Alderneys were shown by only two exhibitors, both from other States. The grade department was very fully represented, and the cows and heifers were of very great excellence. The Short-horn cross on the Dutch or Holstein was most predominant, and next to these the cross upon the native stock.

Sheep.—The show in this department was excellent. Merinos (Spanish, French and Silesian) and Saxons were fully represented. South-down and long wooled were largely shown, and of superior excellence.

Horses and Mules.—The show of horses was very fair, that of mules very fine, said never to have been excelled in size and style of animals in this country.

Poultry.—The poultry show was a fair representation of the various breeds in the country.

Implements, &c.—The show of implements, domestic manufactures, dairy and grain products was not large, but excellent in quality. Among the implements there were many new and useful ones. Of mowers there was a fine exhibition, and several which appeared to be decided improvements upon those heretofore in use. The advance which has been made in implements alone for the relief of the farmer, has, doubtless, contributed more than any other department to relieve the farmer in his arduous work; and had the Society done nothing more than in this direction alone, it would be entitled to the lasting gratitude of the citizens of our State.

Fruits, &c.—The exhibition of fruits and the floral department was very good, and many choice varieties of extraordinary excellence were shown.

It was gratifying to the Society to observe in their area not only exhibitors from adjoining States, but a contribution from one as

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distant as South Carolina, as evidencing that in the pursuit of agricultural improvement, which is the design of the Society, it is receiving and is to receive encouragement and aid from all portions of the Union, as possessing a common interest. Dr. James B. Davis, of Columbia, South Carolina, had on exhibition Cashmere goats, which have been thoroughly domesticated in this country, and are destined to be of very great advantage. It is gratifying to be able to state that they were secured by citizens from our own State, and are now owned by Hon. Amos O. Osborn and other gentlemen, of Waterville, in Oneida county, where the experiment of rearing them here at the north will be fully carried out.

The press of the city and of the interior was duly represented, and the Society ever consider this as among the most gratifying of the incidents of their annual fair, for these recorders place before a nation the history of the good work done for the farmer.

There were several of the gentlemen of the Legislature present observing for themselves the result of the liberal policy which has been from year to year extended by the State towards the agricultural interests of the State to which the Society is devoted. They could witness that one of the results of the enlightened patronage which has fostered the Society into permanent usefulness has been this annual gathering of farmers, and the friends of farmers, to congratulate each other that in every department of agriculture the step of improvement has been certain.

The annual address was pronounced by the Hon John P. Hale, recently one of the Senators of the United States. It had the breadth of thought, the clear view, the force of expression and grace of utterance which characterize this gentleman. Year after year the Society has called to its platform the men of study and research, and thought, and their discourses collected would form a volume of vast worth and widely-diffused usefulness. It is much to be regretted that this address has not been furnished for publication.

The Society desires to express its grateful acknowledgments of the services rendered by the judges. Their prompt attendance,

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their faithful discharge of the delicate duties devolved upon them, by the offices designated, their skillful discrimination, all combined in rendering their services of the utmost value.

To the police of the city the Society returns its thanks for the order and efficiency which distinguished the administration of their duties.

In the history of its fairs the Society finds solid encouragement. Fourteen times has it called together the people, and to each call the response has been complete. Vast crowds, mighty gatherings, the voice of the orator, a wealth of industry and ingenuity, all the incidents of a festival of the productive arts has been the scene witnessed in all these years. Such has been the sympathy between the farmer and the people.

The Society enters upon another year with the calm and assured hope, that while it shall continue to bestow its strongest efforts to advance agriculture, the tiller of the soil will be the most steadfast friend of the Society.

The American Institute, with gratifying liberality, omitted its annual exhibition, and contributed towards the funds to be awarded for premiums as will be found in the Treasurer's report, and co-operated with the Society in the appointment of judges, and in the arrangements of the exhibition, and its officers are entitled to the commendation of the farmers of New-York for their interest in the great work of agricultural improvement.

The New-York Horticultural Society also united its efforts with those of the Executive Board, and added largely to the interest of the exhibition by the very interesting display which was made under its supervision and direction. Peter B. Mead, Esq., the efficient Secretary of that Society, superintended the fruit and floral department, and his very able report will be found annexed.

From the report of the Treasurer it will be perceived that the receipts of the Society, including the balance in the Treasury at the close of the preceding year, were $22,546.13, and the expenditures $19,982.35, balance, $2,563.78; medals for premiums on hand $175, and premium books $165.

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The Executive Committee in closing up their labors have the satisfaction of assuring the Society that in no former year has there been more cordial efforts made to sustain the cause of agriculture. At no previous period have more gratifying assurances been received from their correspondents both at home and abroad of the salutary influence which is being exerted by the Society upon the great work of agricultural improvement.

Feeling that they have devoted their best energies to the work that has been assigned to them, they resign the trust committed to their charge to their successors, who will bring to their work an equal zeal for its successful prosecution and being sustained, as we doubt not they will be by the intelligent agricultural interest of the State, they will, it is most confidently believed, be enabled, at the close of their official term, to report still further progress than has been made by those who preceded them.

On behalf of the Executive Committee.

B. P. JOHNSON,

Cor. Secretary.

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HORTICULTURAL REPORT, 1854.

The experiment of holding a State fair in the city of New-York has now been tried. Its success has not been equal to the anticipations of many—but as great, perhaps, as could have been expected under the circumstances of the case. The chief untoward circumstances were: an almost unparalleled drought, disheartening to agricultural enterprize in all its forms; want of accommodations to reach the grounds; and an indisposition, from various causes, on the part of the citizens of New-York, to visit public exhibitions, except during the evenings; together with a want of appreciation of the deep importance attaching to agricultural pursuits. Other causes might be added, but these may be regarded as among the chief. So far as regards the fair itself, it was most creditable to all concerned, and needs no apology from me.

Sanguine as I am known to be, I must confess that I looked forward to the horticultural exhibition with many misgivings, and visits to some earlier shows only served to strengthen them. With extensive and reliable means of information, I had concluded that in the quality of many, and in the quantity of nearly all horticultural productions, there would be a considerable falling off, as compared with ordinary seasons. These misgivings proved in a measure to be true. The general results of each year, together with their causes, ought to be put upon record for future use. It may be acknowledged that, in some important respects, the horticultural exhibition of 1854 was not as good as some of its predecessors, and it may at once be referred to its proper cause—a long continued and fearful drought, extending to every section of the country, and blighting all our hopes.

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I will now endeavor to give a brief description of some of the principal articles exhibited in the horticultural department, as well as I am able, so far removed from the books and records of Floral hall. The fair was held in a locality where nothing was to be expected in the way of contributions for simply decorating the hall. No disappointment was experienced in this respect, for nothing was received. I ought, perhaps, to add that few persons, within any reasonable distance, had anything to give. Under these circumstances, and having a foreboding that the receipts of the fair would not realize general expectations, my object was to decorate the hall with a strict view to economy.

The hall was fitted up in a plain, but neat manner. The tent poles were wreathed, and festoons stretched between each, and to the principal entrances, which were arched, and a stately cedar placed on each side. Cedars were also placed at intervals around the sides of the tent, the sides being festooned, and such other decorations made as served to give the whole a neat and pleasing appearance. Around the tent poles were erected large circular tables, with flat ones between, the whole being covered with a fine collection of pot plants. Next the tent walls, on both sides, were tables for cut flowers. Through the aisles were several very large tables, covered with beautiful specimens of fruit. In the center of each aisle was a superb fountain, of large size, each surrounded with bouquets, floral baskets, and other pretty things. Statuary, flower stands, vases, &c., placed here and there, gave a beautiful tone to the whole, and made Floral hall worthy of all the commendation it received from the public and the press.

The display of fruit, though said to be smaller than on some former occasions, was a good one, containing many samples not easily surpassed. I doubt whether either Messrs. Ellwanger & Barry, or Hovey & Co., have often exhibited better specimens of pears, as a whole; and I also doubt whether Messrs. Frost & Co., Bailey, and some others, ever placed upon a table better specimens of apples. The apples from Illinois, shown by Dr. Pennington, were very beautiful. On the whole, the show of apples and pears was very gratifying.

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The display of grapes, both foreign and native, was large, and many of the specimens were of great excellence. Some varieties of the foreign grape were not as well colored as they might have been; but the samples, generally, were unexceptionable, giving evidence of the growers' care and skill. The many large and handsome bunches of foreign grapes constituted one of the chief attractions of Floral hall. The season was generally very propitious for native grapes, where the vines had become well established, and the result was a fine display of well ripened specimens. Grapes, in common with all other fruits, ripened this year from one to two weeks earlier than usual. Dr. Fowler exhibited the Diana in great perfection. Mr. Bull sent some beautiful bunches of the Concord, of which presently. The show of peaches, plums, &c., was as large as could have been expected, and the specimens of good quality and size.

I had designed to notice somewhat in detail several new fruits, as well as some seedlings, but it is now out of my power to do so, with but two or three exceptions. There were several seedling apples, one or two of some merit, and deserving of further trial. Judge Livingston exhibited one of his seedling pears, a little under medium size, obovate, russetty, with a red cheek, fine flesh, melting, juicy, with a rich vinous flavor. It was highly spoken of, and I can bear testimony to its merit. It keeps till March. It has been named the "Livingston pear" by the fruit committee of the New-York Horticultural Society. Mr. Carpenter exhibited specimens of his seedling peach, which, however, were not fully matured. This peach was sent to me in the latter part of Oct., 1853, for examination and a name. Two of the specimens measured nearly *fourteen* inches in circumference. The flesh was white to the pit, juicy, sweet and luscious. It was raised in New-York. Its late maturity, large size, and excellent quality, will make it a valuable addition to our list of fruits. I named it "Carpenter's white," a name which has since been confirmed by the fruit committee of the New-York Horticultural Society.

Some notice may here be taken of the Diana and Concord grapes, both of which were on exhibition. The bunches of the Diana are small and compact, without shoulders; the berries are

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small, light colored, juicy, sweet and well flavored; the skin is rather thick, and the pulp somewhat consistent. When I first described the Diana, I stated that "it would be a valuable grape for localities," but "that we should not see it in its greatest perfection till it had been submitted to long-continued and judicious culture," &c. At that time the Diana had not been fruited out of Boston. Since then it has been diffused all over the country; and, as far as I can learn, it has proved a valuable grape, not only where the Isabella and Catawba will not ripen, but even where they will. I have had opportunities of seeing it from various localities in this State; and, as the result of further experience, I desire to say that I consider it a valuable grape for general cultivation. While it ripens before the Isabella and Catawba, it will keep longer than either—an important quality in a market fruit.

The Concord grape has been the subject of much discussion, and the large and handsome bunches exhibited by Mr. Bull (with whom it originated) naturally attracted a great deal of attention. Many, who supposed the description given of it greatly exaggerated, were disappointed at its splendid appearance, and all seemed surprised. No other thing in Floral hall created such an "itching palm" to violate the command, "touch not, taste not, handle not," and no other thing was so much talked about. I must confess that I was a little disappointed myself. I will now describe it. The color of the Concord is a dark purple. The *bunches* are large and shouldered, *berries* roundish, oval, large, and covered with a rich dark bloom, *skin* thin and tender, with a bright purple coloring matter on the inner surface, *pulp* sweet, very juicy and melting. The flavor has been termed "foxy," in regard to which pomological giants have been waging a fierce warfare, the end of which is not yet. I do not propose to take any part in this discussion, but simply describe the Concord as I found it. This "foxy" flavor, as it is termed, increases the longer the bunches are kept after having been cut; and I must add here that I have seen many specimens of the Isabella in which this flavor was quite as strong as in the Concord; and I have also seen many specimens of the Isabella far inferior in all respects to the Concord exhibited at the late fair. I kept some

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Concords for a fortnight, at which time I found this flavor had increased. This may account for some of the difference of opinion in regard to the flavor of this grape; it would seem to indicate, also, that it should be eaten when fresh cut. The flavor or aroma of the Concord is about the only objection that has been made to it; but this, I think, will be somewhat subdued under the influence of congenial soil and culture. We have not yet seen enough of the Concord to assign it, in specific terms, its proper place; but all candid men, I doubt not, will agree in saying that it is a most valuable addition to our list of native grapes. It ripens much earlier than the Isabella, thus extending the season of this most luscious fruit. Altogether, Mr. Bull has rendered horticulture a good service by the introduction of this fine grape, and I hope will be encouraged to continue his experiments in raising vines from the seed.

The show of vegetables, as was to have been expected, was quite meager, and contained few things worthy of special remark. The gardeners around New-York generally make a large display of vegetables, not easily surpassed for real excellence; but the scorching heat and drought discouraged their efforts, and garden products were left mostly to take care of themselves. A little more energy and perseverance skillfully applied would have produced somewhat different results, notwithstanding the drought.

One novelty may be mentioned in this connection: Mr. Boll exhibited an oil painting of the new Dioscorea from Japan (*D. batatus*), not having been able to get the tubers from on board ship in time for exhibition. This plant has been submitted to a variety of experiments in France, with favorable results; and it is there supposed that it will prove a valuable substitute for the potato. My own opinion is that the potato will never be superseded by any vegetable whatever. The new Dioscorea, however, may prove a valuable addition to our root crops. The French government has directed that it shall be planted in all the departments of France, having purchased nearly all the stock for this purpose. Mr. Boll, being in Paris, was fortunate in procuring a few roots before this arrangement was completed.

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Let us next turn to the plants and flowers. Under such discouraging circumstances, it was truly gratifying to behold so many of these beautiful and delicate objects. The well-furnished tables of cut flowers were much admired, and added much to the cheerfulness of Floral Hall. The specimens, it is true, were unequal in merit, yet not a few were perfect of their kind, and would have been pronounced first-rate any where. Mr. Weir and Mr. Burgess exhibited seedling dahlias of great merit. Mr. Schobz exhibited some seedling petunias, two of which were beautifully mottled and striped, and worthy of a place in the smallest collections. There were also some very good seedling roses, verbenas, &c. Among the pot plants were a number of well-grown specimens, and several new and rare plants, the most beautiful of which, undoubtedly, was the *cissus discolor*. It is a gem. There were a large number of bouquets and baskets. They were very beautiful, and worthy of all the admiration they received. One bouquet, in the form of a bird's nest, was not less novel than beautiful, and evinced much taste and skill.

In this connection may be mentioned a great variety of bronzed statuary, vases, fountains, &c., exhibited by Messrs. Janes, Beebe, & Co., beautiful in design, and of the most finished workmanship. New-York is not without the taste and skill to produce a fountain worthy of a great city, though she is content to have her public squares disgraced by the most miserable caricatures. In the midst of these fountains was placed a miniature garden, executed by Mr. Graef, of Brooklyn. It was complete in its winding walks, cottage and outbuildings, rookery, flower beds, miniature trees, shrubs, &c., growing in the natural soil, and all the accessories of a landscape. It was a very pretty thing, and much admired.

A few words of comment, and I shall have done. Our fairs should be made profitable to all. While endeavoring to accumulate knowlege for others we should see if there is not something we can learn ourselves. Attentive observation may convince us that a slight modification in the operation of a rule may enable us to accomplish the objects of the Society in a more certain and satisfactory manner; or it may convince us that certain rules

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should be abolished and others adopted. With this view I will venture to make a few suggestions. If the Society should hereafter continue the practice of offering prizes for articles made or grown without the State, it should be done in such a way as to ascertain not only who exhibits the best article of the kind in the State, but who exhibits the best in the fair. This would be no more than just to the exhibitor, and it is due to the public. Now, this can only be accomplished by placing all exhibitors upon a footing of equality. Some State exhibitors might, perhaps, object to this, but a little reflection would probably reconcile them to its justice. The foreign exhibitors, so far as I can learn, regard the money value of a prize as of secondary consideration. All they ask is an open field for the *honors*. It is certain that the present system has been a source of great dissatisfaction, not only in this Society but in all others where it has been tried, and in most of which it has now been abandoned. I would therefore suggest whether it would not be wise to abolish the *foreign* list altogether, or at least modify it so as to make it more acceptable to those concerned.

Again, one of the Society's rules says, that all fruit, &c., shall be correctly named. This, in itself, is a good rule, designed to accomplish an important purpose; yet, its rigid enforcement has, in some cases, operated injuriously. Still, rules ought to be enforced while they remain on the books. The fruit exhibited by amateurs is judged by professional men, and vice versa. Professional men are generally proud of their knowledge, and whenever in an amateur's collection they find a few specimens wrongly named, they disqualify without mercy. This was the case at the last fair, and is more or less so at all fairs. I am far from finding fault with them for so doing, for the society made it their duty. The thing would not be so much complained of if the judges would place a card on such lots, saying, "Disqualified for being wrongly named," or whatever the reason might be. Now, let us hear what the amateurs have to say. I have asked them how it happened that their fruit was wrongly named. The reply, in substance, has been, "they did not know it, they supposed all was right, they got these names with the trees from the nursery,"

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&c. This is only too true; and the result is, that the amateur's fruit is often disqualified because of the nurseryman's carelessness. Now, the rule ought to hold the nurseryman (from whom many of these errors emanate) strictly accountable for the correctness of his labels; but in the case of the amateur, whose means of information are often limited, some latitude ought to be allowed; nay, it would be a laudable act to write the proper name on all fruit wrongly labeled, so that the amateur might go home with something added to his store of knowledge, and not disheartened by the harshness of a decision, the justice of which he cannot apprehend.

Once more: The line of demarcation between the amateur and the professional man is not sufficiently marked. It is difficult in some cases to draw the line; yet the interests of the society demand that it should be well defined. On referring to the judges' reports it will be found that the *same person* has taken prizes in both lists; and names will also be seen in the amateurs' list which have not the shadow of a right to be there. How they got there at the last fair is still a mystery to me. Some of the exhibitors must thereby be wronged; and in addition to this the society suffers in a pecuniary way. This subject ought to receive a careful consideration. But perhaps I have said enough.

In conclusion, I would return my sincere thanks to my associates, Messrs. Vick, Chatfield, Harold and Cheetham, from whom I received most valuable assistance, and to whom the Society is greatly indebted for their important services in Floral Hall. I do this the more heartily, since these are the only thanks they are likely to receive. I shall always cherish a warm regard for each and all of them, and trust to have the pleasure of meeting them again "in the tented field." To the Society I would offer my sincere wishes for a long career of usefulness in the noble cause in which it is engaged.

All of which is respectfully submitted.

PETER B. MEAD,
Superintendent of Floral Hall.

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BALCO—(9,918.) Winner of the first prize in the imported class of Bulls, 3 years and upwards, at New York, 1854. Owned by Morris & Becar, N. Y. Since sold to J. W. Wilkin, of Orange co., N. Y. PEDIGREE—Red and white; calved Feb. 23, 1849; bred by Thomas Bates, of Kirkleavington, Eng.; sire 4th Duke of York (10,167); dam (Wild Eyes 15th) by 4th Duke of Northumberland (3,649); g. d. (Wild Eyes 8th) by Duke of Northumberland (1,940); gr. g. d. (Wild Eyes 2d) by Belvedere (1,706), &c., &c. See *Eng. Herd Book.*

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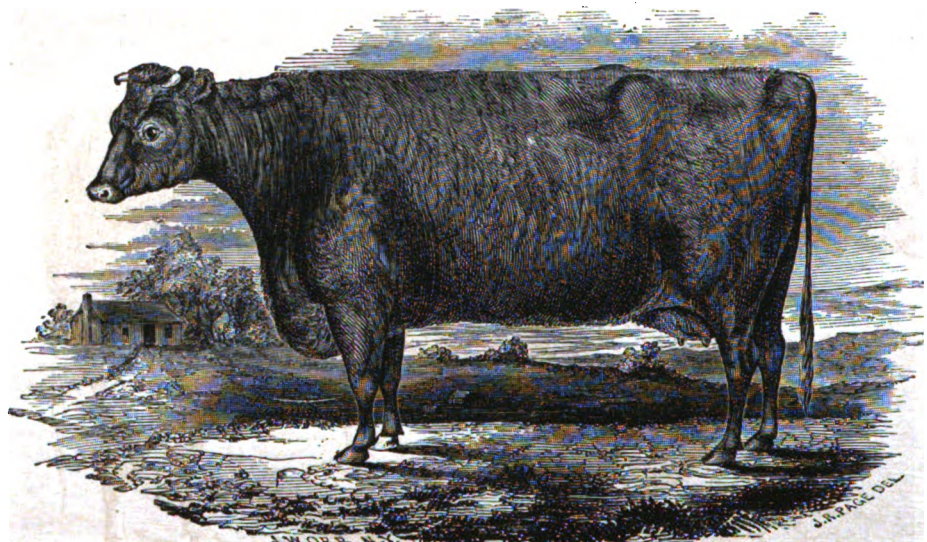

PHŒBE, 7TH.

Short Horn Cow. The property of Lorillard Spencer, William's Bridge, N. Y. Winner of the first prize at the New York State Fair, 1854, as the best Short Horn Cow, American bred, 8 years old and upwards. PEDIGREE—Color red; calved April, 1850; bred by J. F. Sheafe, Esq.; got by Duke of Exeter (10,152); dam Phœbe 4th, by Pontiac (125); g. d. Phœbe 2d, by Young Washington; g. g. d. Phœbe 1st, by Earl Spencer's Durham Bull; g. g. g. d. by Young Commerick.

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REPORT OF JUDGES AT THE STATE FAIR, NEW-YORK, OCTOBER, 1854.

SHORT-HORN BULLS.

The committee appointed by the New-York State Agricultural Society on Short-horn bulls would respectfully submit the following report:

That in some classes or ages the animals were fine and well cared for; in others many of them were of inferior and indifferent specimens of the breed; and others, that apparently were fair specimens, were in such a bad case, as to having been well kept, that it was very difficult to decide as to their real merits; had they all had good keeping and been in fine working condition your committee might have awarded differently in some instances. It is but justice to ourselves that we say that our committee on the final awards was full, and that in all cases but one were unanimous in our conclusions, and in that case the minority consented that the majority should govern the award. Of imported bulls, three years old and over, there were four entries. Taking the rules adopted by the Society in the scale of points furnished, we award as follows, viz.:

1st premium to Balco, $25, owned by Morris & Becar.
The animal next in merit, Romeo, owned by the same.

Of two year olds there were no entries, and but one entry for yearlings, and that by Hungerford & Brodie, of Jefferson county, to which we award the 1st premium, to their bull St. Nicholas, of $15, he being a very fine specimen of the breed, and considered worthy of it without competition.

Of bull calves sired abroad but one entry was made, and that by L. G. Morris; 1st premium awarded, bull calf Brawith, $5.

It is but justice to the exhibitors of imported bulls to say that the animals were all in fine condition, and well tended, for which the thanks of the committee are tendered most respectfully.

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Of three years and upwards, not imported, there were fourteen entries. Your committee, after mature deliberation, award as follows, viz.:

1st premium to Prince Royal, $25, owned by Thomas Gould, Aurora, Cayuga county.

2d do to Prince Albert, $15, owned by Wm. Kelly, Rhinebeck, Dutchess county.

3d do to Sir Arthur, $5, owned by James Merriman, Oriskany, Oneida county.

Next in merit your committee would mention Robin Hood, belonging to Hungerford and Brodie, of Jefferson county. Sir William, owned by Aaron Vail, Stamford, Dutchess county, was considered the best bull in this class, but as Mr. Vail was one of the judges he was not permitted to compete.

Of two year olds there were eight entries. But two awards were made, as follows, viz.:

1st premium to Lafayette, $20, owned by J. M. Sherwood, Auburn, Cayuga county.

2d do to Henry Clay, $10, owned by Thomas Richardson, West Farms.

Of yearlings there were seven entries, to which we award as follows, viz.:

1st premium to Oxonian, $15, owned by L. G. Morris, Fordham, Westchester county.

2d do to Majesty, $10, owned by James Bathgate, Fordham, Westchester county.

3d do to Sir Robert Peel, $5, owned by Oliver Slate, Jr., Throg's Neck, Westchester county.

Of calves there were six entries. We award as follows, viz.:

1st premium to Lucius, $5, owned by L. G. Morris, Fordham, Westchester county.

2d do to Red Jacket, Transactions and $3, owned by J. M. Sherwood, Auburn, Cayuga county.

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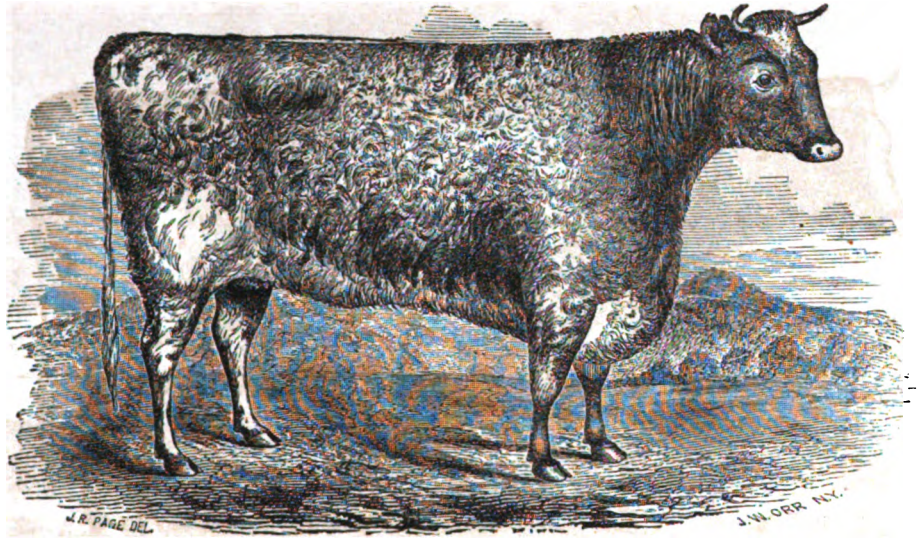

MAID OF OXFORD.

Short Horn Heifer. Bred by and the property of Noel J. Becar, Smithtown, L. I., winner of the first prize in the class of two years old Short Horns, Heifers, bred in this country, at the New York State Fair, Oct., 1854. Got by Lord of Eryholme (12,205); dam Oxford 13, by 3d Duke of York (10,166); g. d. Oxford 5, by Duke of Northumberland (1,940); gr. g. d. Oxford 2, by Short Tail (2,621); gr. gr. g. d. Malchem Cow, by Malchem (2,281); gr. gr. gr. g. d. by young Wynyard (2,850). [Oxford 13th was the winner of the first prize at the N. Y. State Fair, 1853, at Saratoga, as the best cow 3 years old and upwards.]

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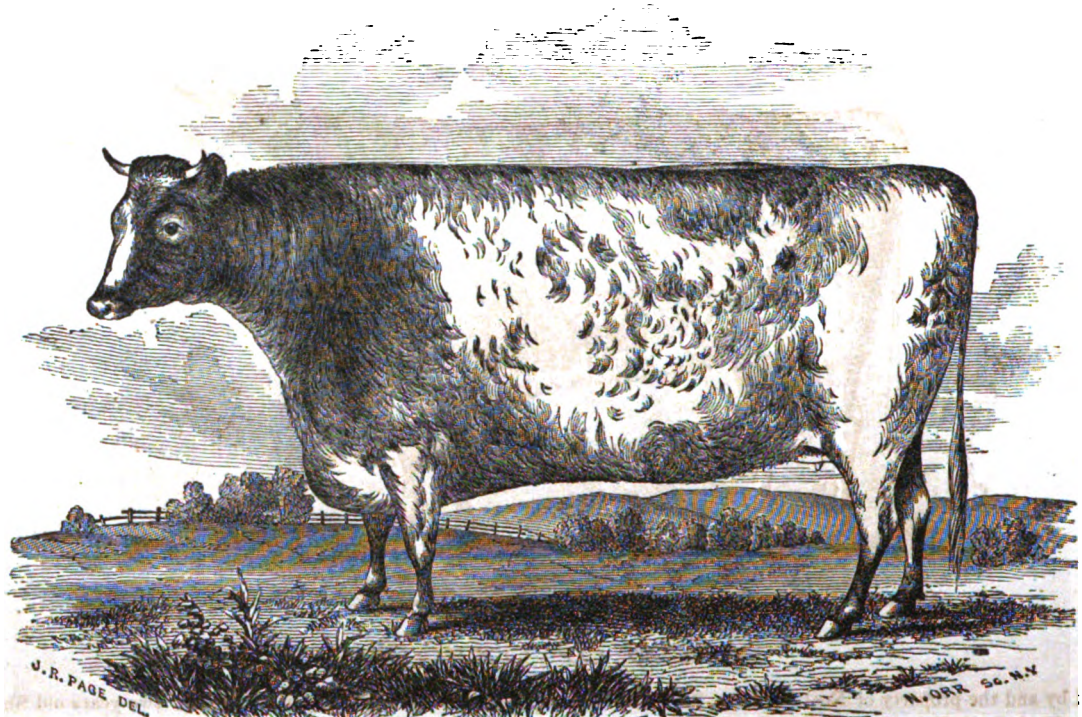

ALTHEA.

Color roan; bred and owned by Sam'l T. Taber, of Chestnut Ridge, Dutchess co., N. Y. Winner of the first prize in the class of yearling Short Horn Heifers, at the Cattle Show of the N. Y. State Agricultural Society, on the 3d to 5th days of October, 1854, at New York city. Calved 12th March, 1853. Got by Backwoodsman; dam Aurora 2d, by East Windsor, 56 Am. Herd Book; g. d. Aurora, by North American 116 (6,253); g. g. d. Atalanta, by Enchanter (3.729); g. g. g. d. Adeline, by Young Comet (3,437); g. g. g. g. d. Emma, by Wellington (683); g. g. g. g. g. d. Annabella, by Major (398); g. g. g. g. g. g. d. Ada, by Denton (198); g. g. g. g. g. g. g. d. Aurora, by Comet (155); g. g. g. g. g. g. g. g. d. ——, by Henry (301); g. g. g. g. g. g. g. g. g. d. ——, by Danby (180).

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In making our closing remarks we simply say a word to competitors on the subject of keeping a fine animal. No animal is fit to be presented at our State shows that is not in good working order, because it is impossible to judge correctly between an animal properly cared for and one that is not; neither does an animal pay as well on poor fare as on a liberal allowance.

We do not wish to be understood that a breeding animal should be kept fat; but they should be well kept, and in good condition at all times; and this principle should be kept in view by exhibitors, that one animal well kept is worth more than two badly cared for.

All of which is respectfully submitted.

JONATHAN TALCOTT,
Chairman of Committee.
R. W. MUSGRAVE,
DAVID BROOKS,
C. N. BEMENT,
AARON VAIL,
Committee.

STEERS.—3 YEARS OLD.

The committee on class 1, No. 14, (steers, 3 years old,) submit the following report:

The exhibition in this department did not meet the reasonable expectations of the Society, nor in point of number did it equal that of former fairs. There was but little competition, and, what your committee regret the more, no competition of the farmer boys for the training of yokes of steers.

But few as the number presented was, there being only two yokes entered, your committee were unanimous in their opinion that in point of quality these were of eminent merit. The training and discipline of the steers presented by Mr. Salisbury evinced a master's hand, and to these your committee have

[NOTE.—The award of premiums at the annual fair and winter meetings, will be found at the close of the volume.]

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awarded the first premium. The Devon steers presented by Mr. De Forrest, exhibited, in a remarkable degree, the activity and speed for which this breed of animals is noted, and to these the second premium has been assigned.

The committee feel it a duty they owe to the Society, as well as the farming interest of this State, to call in future for a much larger presentation under this class; believing that in very many of the regions of the State too much attention cannot be paid, especially by those fitting themselves in their agricultural schooling, to the training and improvement of working cattle. Let those who are to be the future farmers of this State compete at the next fair for the Silver medal.

MATTHEW D. BOGART,
ISRAEL H. WICKHAM,
JOHN L. DENSON.

REPORT OF COMMITTEE ON THOROUGH-BRED HORSES.

The committee on thorough-bred horses respectfully report:

That after a careful examination of all presented to them, and being guided by the following rule of the Society, which is: "That *pedigrees* must be produced showing the purity of blood of the animals exhibited, and that none others will be allowed to compete, and the judges are required to reject any horse or mare with which there is not furnished a *complete pedigree*, on side of dam and sire." It is with extreme regret that the committee announce the very limited number of thorough-breds presented for premiums at the great New-York State Fair and American Institute combined. Your committee do not hesitate in giving their opinion unitedly in favor of blood horses, judiciously selected, to breed from, in order to improve the stock generally for the road, carriage trotters, and most of agricultural purposes; and the very high prices such horses command should stimulate breeders to raise good ones. We were highly gratified with the fine appearance of the splendid horse, "Imported Trustee," so favorably known to the public, with the elastic step and majesty of former

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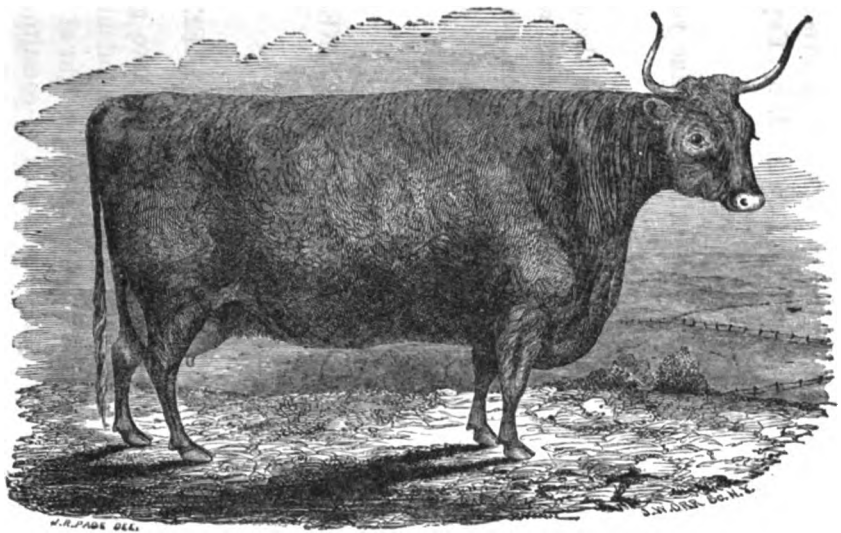

BIRTHDAY.

North Devon Cow. The property of L. G. Morris, Fordham, N. Y. Winner of the first prize at the New York State Fair, in New York, in 1854, in imported class, and at Saratoga in 1853, the first prize at the Devon Agricultural Show at Exeter in 1848, and first prize at the Barnstaple and North Devon Cattle Show in same year as one of a dairy of cows. Sired by Proctor (109); dam Taunton (440), Davy's Devon Herd Book.

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years. He excited much attention. Having heretofore received all the premiums allowed by the Society, we can only express our wishes that he may live to get more "Fashions" to rival the South in honorable competition.

Mr. O. R. Burnham, of New-York, presented a beautiful young horse called "Tornado," which, for symmetry of form, justness of proportion and elegance of action, attracted universal attention. This horse was got by old "Tornado," formerly owned by Robert L. Stevenson, and now owned by Edward Long, Esq., of Washington county.

Mr. Truman Derrick, of Long Island, exhibited a fine young horse called "Liverpool."

These two horses, whatever their merits may be, and the committee feel bound to concede they had many strong points, were, by the rule above referred to, excluded from competition, perfect pedigrees not having been produced.

DAVID W. JONES,
EDWARD LONG,
JOHN J. VIELIE,
ALBERT FLOYD JONES.

REPORT OF COMMITTEE ON LONG-WOOLED SHEEP.

In addition to the awards by your committee, we take great pleasure to remark that with a number of specimens submitted to their inspection, that we have rarely seen such weight of carcass, combined with fine forms and hardiness of constitution, which show a marked improvement in this branch of sheep husbandry. Your committee would especially recommend to breeders the great importance of preserving in the several classes, or kinds of animals, a uniformity of likeness, as characteristic of the breed: as for want of this feature alone there have been many failures in keeping up an improvement in stock and herds fit to propagate their species.

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As worthy of special notice, there were several pens of sheep which came under our supervision, and not entitled to compete for premiums (for lack of number,) but which, according to the rules, would entitle their owner to a discretionary award, viz: Lot No. 18, 4 ewes, entered by Daniel Haight, of Dutchess Co.; lot No. 25, ewe and lamb, by Nathaniel Hallock, from the same county; and also lot No. 69, 1 buck and 3 pretty good lambs, by Daniel Rice, of Washington county.

L. D. CLIFT,
J. E. STEARNS,
JOSEPH McGRAW, JR.,
Judges.

SAXON SHEEP.

Best samples of wool, not less than five fleeces, only one entry. The condition of this lot, as well as its quality, would not entitle it to a premium of a silver medal, but the committee would suggest a volume of Transactions.

Best 50 specimens of fleece, one from each sheep, premium of silver medal. Owner, Isaac Merritt, Dutchess county, N. Y. These specimens show that the flock will grow a compact fleece, good length of staple and fine wool. For the purpose of exhibiting these traits, recommended to deposit in museum of Society.

As all improvement in animals is the result of careful selecting and breeding, your committee would recommend to the growers of Saxon sheep to breed compact and heavy bodies, so as to give more surface, well covered with an even and thick grown fleece, thus giving constitution to the animal as well as securing a heavy fleece.

THOMAS REED,
JAMES M. ELLIS.
THOMAS W. SWIFT.
H. BLANCHARD.

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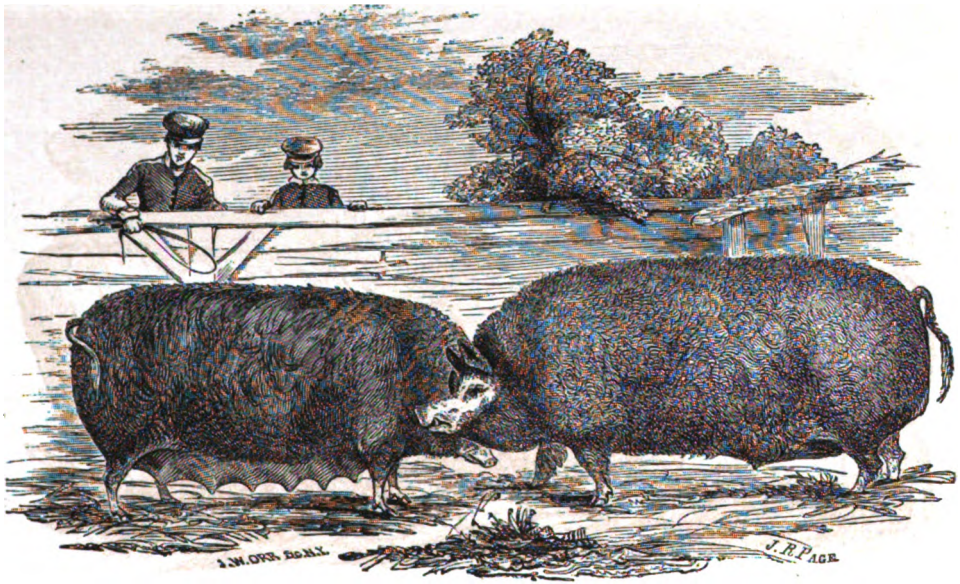

BERKSHIRES.

The property of L. G. Morris, Fordham, N. Y. "Sir Robert," winner of the first prize at the New York State Fair, 1854. "Lady Berk" was on exhibition, with ten pigs, and highly commended.

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THREE SOUTH DOWN BUCK LAMBS.

Bred by and the property of L. G. Morris, Fordham, N. Y. Sired by imported buck "Young-York." Winners of the first prize at the New York State Fair, 1854.

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CROSS-BREED SHEEP.

The committee on cross-breed sheep respectfully report that they have discharged their duties under great difficulties, with much labor, and according to their best judgment; and although we cannot hope to give satisfaction to every exhibitor, we have done our best. We would suggest that the State Agricultural Society hereafter make only two classes of premiums on grade sheep, viz., those of the crosses of fine wool, and those of coarse wool and mutton sheep; we make this suggestion to avoid vexation to the committee and disappointment to the competitors.

We would add our testimony to the admirable manner that the pup shepherd's dog of L. G. Morris, Esq., worked his sheep, especially taking into consideration his age. His work was done finely, coolly and satisfactorily.

JOHN HAROLD,
J. N. DE FOREST,
JOHN T. ANDREWS.

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DAIRY.

E. SHERMAN, SEARSVILLE, ORANGE COUNTY.

Method of making butter.

As soon as the milk is taken from the cows it is strained in pans that will hold twelve and fourteen quarts—but do not fill them, say from an inch to an inch and a half from the top, and in very hot weather we think it a good plan to add a pint or more of cold water to each pan of milk for the purpose of cooling it (although it is not always done). The pans are set on flat stones laid on the cellar floor (which is cold clay), and left undisturbed until it thickens, which is generally from thirty-six to forty-eight hours. This will doubtless be set down by many as far too long to keep milk, and ridicule the idea of having good sweet butter from such stale milk; but it is only in the very hot, sultry weather that we find it necessary to churn it at the expiration of thirty-six hours. We use dog power to two barrel churns with common single dasher. Churn all the milk, and plenty of water, too; it is generally one pan of water and seven of milk, put in the churn before commencing churning. The object of this is to thin the milk, which seems to hasten the coming of the butter; besides it is more readily separated from the milk; in moderate weather the chill is taken off the water before adding to the milk. (About temperature.) The only thermometer we use is the forefinger of our dairy maid, and we find she can temper the milk full as well as those who use a "real one;" she has practised six years in our family. After the milk is churned, which takes from one to one and a half hours, we add two or three pails more of cold water right from the well, and let the butter stand on the milk for about half an hour; then take off with a ladle, pressing

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out what milk can be got out conveniently; wash in one or two waters and then salt; we use the Ashton brand; the quantity is perhaps one ounce to a pound, but in this we are most generally governed by the taste, being careful not to salt too much. After the salt is well worked through, the butter is covered and left to stand for two or three hours, and it is worked again, and again left for about the same length of time, and at the third working we find it fit for packing, which is commonly just before going out to milk in the evening; we prefer working but little at a time and often, as long working at it is apt to make it soft. In order to have good butter I consider it very essential to have the milky brine well worked out; when this is accomplished all after working is only an injury. This is our process in butter making, and we find it varies but little from some of our neighbors, whom few can surpass either in quantity or quality. One told me that in 1853 he made 248 lbs. on an average to each cow (his dairy consists of ten cows), and from each cow he realized $76, exclusive of the *pork*. He is a man of standing and undoubted veracity, and his statements can be fully relied on; his cows are well kept, on the best of food, and while on hay each one gets daily about four quarts of corn meal. There are others of my neighbors who make about as much butter from each cow, and from such examples we see the advantage of keeping our stock well. My dairy consists of from thirty-five to forty cows.

MINERVA S. RICE'S STATEMENT, GREENWICH, WASHINGTON CO., N.Y.

Butter was made between the 20th and 25th of September, 1854, by Minerva S. Rice, of Greenwich, Washington Co., N. Y., aged 18 years, who stated as follows:

The milk is strained into tin pans, about four quarts to a pan, then let it stand 24 hours; separate the cream from the milk; then put the cream in the churn, and churn till the butter has come; take up the butter and rinse it in pure cold water; then take the butter and put in one ounce of rock salt to one pound of butter; after standing three or four hours put in one table spoonful of loaf sugar, a small quantity of saltpeter to 10 lbs. of butter; the third time working put it down in the jar.

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SOPHIA A. OTTLEY'S STATEMENT, PHELPS, ONTARIO COUNTY.

Sophia A. Ottley, 18 years of age. Commenced making this 25 lbs. of butter, the 16th day of September. The butter made from the milk of ten cows. The secret in making good butter is keeping the vessels perfectly scalded, and removing the cream from the milk in due time. The milk is set in tin pans. Removed the cream from the milk with a skimmer after it had stood 36 hours; churned within 24 hours; churned in a patent revolving churn; removed the butter from the churn with a ladle; used no water to free the butter from the milk; worked three times before packing; salted it by the taste, or from three-quarters to an ounce of Hope Factory steam-refined ground salt to the pound.

JOHN SCOTT'S STATEMENT, HOMER, CORTLAND COUNTY.

The tub of fresh butter presented for your inspection was made in the following manner:

As soon as the milking is done the milk is strained into tin pans and set on racks made for the purpose, and there remains until it begins to thicken; the cream is then taken off, put into tin pails, and set in cellar until it is churned; during the churning cold water or ice is applied in sufficient quantities to keep it cool; as soon as the butter is sufficiently gathered, the buttermilk is drawn off and the butter washed in cold water twice; it is then taken into a bowl and salted with Ashton salt, about 1 oz. to the lb., worked lightly, and stands until night, worked again the next morning, and worked over again very light, and packed into the tub.

NOAH HITCHCOCK, JR'S, STATEMENT, HOMER, CORTLAND CO.

1st premium.—Winter meeting.

The butter presented was made as follows:

One tub in September, and the other two in October. My dairy would average about 30 cows through the season. Owing to the severe drouth the season past I have not made my usual quantity of butter from a cow, although the price I got for my

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dairy made it up in part. I made for market over and above what we have used in the family, which consisted of about ten in number, 4,162 lbs., which is an average of some 138 lbs. to a cow. I sold my dairy for 25 cents a lb. The milk, when taken from the cows, is placed in pans on racks. This season I have kept my milk in an upper room. My milk is permitted to stand till it begins to thicken; the cream is then taken from it, put into large cream pails made for the purpose, and stands till the following day, when it is churned; a dash churn is used. The butter is then taken from the churn, and the buttermilk as nearly worked out as it well can be with a butter worker, when nearly an ounce of Ashton imported Liverpool salt is added to one pound of butter, and well worked in. It is then left to stand some twelve hours and worked again; and in about the same length of time it is again worked, and packed for market. A cloth is placed over the top of the tub or firkin when filled, which is covered well with salt and kept moistened with brine, covered with a flat stone.

JONAS LASHER'S STATEMENT, QUAKER SPRINGS, SARATOGA CO., N. Y.

2nd premium.—Winter meeting.

I milk fourteen cows. My pastures are a mixture of clover timothy and blue grass. I am particular to milk my cows at regular hours, mornings and evenings, and set my milk in tin pans in a stone milk house, which is set about eighteen inches below the surface of the earth, and well ventilated, and let it sit as near thirty-six hours as the state of the atmosphere will admit; then skim it, and churn the cream as soon after as may be, always the same day, with dog power. When well gathered, take it up into a wooden bowl, work in my salt according to my taste and judgment, then let it stand some ten to twelve hours, then work it slightly, and let it stand as much longer, and then re-work it until entirely clear from milk, then pack it as per sample presented. Those samples were made in the month of October last, from pasture alone.

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JOSEPH DANIELS' STATEMENT, GREENFIELD, SARATOGA COUNTY.

3rd premium.—Winter meeting.

The butter which I enter for the premium offered by the Society was made in October. Number of cows kept, six; mode of keeping, pastured in summer, and fed on hay and corn stalks in winter. Treatment of cream and milk; the milk is strained in shallow tin pans, as soon as possible after being drawn from the cow, and allowed to stand from twenty-four to thirty six hours before skimming.

The milk room is built of stone, with cement floor, and fitted up with racks; I consider racks far superior to shelves, as they admit a free circulation of air under the pans. After the cream is removed it is placed in a stone jar until it is churned. Churning is done each alternate day. A common dash stone churn is used, and the temperature of the cream regulated by placing the churn in a tub of water, into which ice is thrown, until it is sufficiently cool. The butter is freed from the buttermilk with a wooden ladle; the hand is never used at any season.

Liverpool salt is used, at the rate of seven ounces of salt to eight pounds of butter. No other ingredient employed. The butter has been kept in a cool upper room, with pulverized salt pressed down firmly on the butter, and the jar closed.

CHEESE.

REPORT OF A. L. FISH, CHAIRMAN.

Mr. A. L. Fish, from the committee on cheese, respectfully reports: That the quantity of cheese exhibited for examination was small, but of superior quality. Several samples of superior quality were exhibited by dealers, unaccompanied with such statements of process of making, &c., as the rules of the Society require. Those unaccompanied with requisite statements were such as did credit to the competitors. As to quality of cheese and mode of manufacture in detail, the committee feel authorized to say that from their experience in examining cheese at public ex-

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hibitions for many years past, that a great improvement is made in the quality of cheese. But still there is a great lack of sameness in character and quality of cheese, reported to have been made with similar practice, and even by the same hands, which is ample proof that much remains to be done to bring the science of cheese making to anything like a reliable standard of practice, suited to the different seasons of the year, and suiting the qualities of cheese to the various markets that are opening for its consumption; and which the true interest of the cheese maker requires to be increased and sustained, by furnishing a good and safe article for export.

To accomplish that object, something more than a faculty to make cheese right is necessary. The very superior quality of the old cheese made and exhibited by Messrs. Bonfoy, of Winfield, and William C. Young, of Columbia, Herkimer county, is ample proof of the advantages of adopting a temperature in which cheese are to be cured to their constitution, and adopting the constitution of cheese to the temperature in which they are to be kept. As I have several times stated my views (in similar reports) upon these essential points in curing cheese, which are already before the public, I deem it unnecessary to make a detailed repetition; my additional experience only confirms my conviction that millions of dollars are lost by dairymen and dealers in cheese, while the same amount of labor now bestowed in producing the article would remedy the evil, if properly directed.

It is to be regreted that dairymen manifest so much lethargy, while the State Society offers such inducements to compete for liberal awards, and their printed columns, as a medium through which a mass of information relating to their sphere of agriculture would be circulated, far and wide, within the reach of many needy and inquiring minds.

With a view of eliciting minute details in the practical science of cheese making, it is respectfully suggested to propose a series of questions, to be answered with details of whys and wherefores, viz:

1st. Do you warm all the milk at all seasons in the year, or not, *and why?*

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2d. At what degree of heat do you set or add rennet, *and why?*

3d. Do you vary the heat at setting at different seasons of the year, *and why?*

4th. What kind of rennet do you use, how prepared, and why? By what rule do you judge of the proper time to commence breaking the curd?

5th. How do you break or make the curd fine, *and why?*

6th. Do you observe a rule as to the time occupied in breaking the curd, *and what is it?*

7th. Do you observe a rule as to the age of the curd when you begin to heat up to scald, and the time occupied in raising the heat, *and why?*

8th. How do you apply heat in scalding; what degree is used, and how long kept applied to the curd to cook it enough?

9th. Do you vary your rule in scalding at different seasons of the year, *and why?*

10th. How do you determine when curd is scalded enough?

11th. How do you separate the whey and curd, and what rule have you for tempering the curd to receive the salt?

12th. What kind of salt used, how much, and how do you apply it, and at what particular state of the curd?

13th. How soon after applying the salt do you put the curd to press, warm or cold, *and why?*

14th. What power do you press with, and how long?

15th. What is the cause of the pressing cloth adhering to the cheese, and what is your remedy?

16th. How do you give coloring to the cheese, inside or outside?

17th. How do you produce a rind impervious to flies?

18th. What kind of oil or dressing is used upon your cheese, and how is it applied?

19th. What is the cause of cheese swelling, and what is a remedy?

It is deemed essential to elicit the most full, practical answers to the above questions, as a guide to the unskilled cheese maker; for without the reason for adopting rules of practice the public are left comparatively in the dark.

(Signed,) A. L. FISH,
Chairman.

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S. & D. BONFOY, WINFIELD, HERKIMER CO.; METHOD OF MANUFACTURE.

1st premium.

The two cheese over one year old, on exhibition, were made the 15th of September, 1853, from the milk of thirty-eight cows, with the cream of the milk. The evening's milk of the 14th was drawn from the cows and strained into a wooden vat. After the milking was completed there was about one gallon of pure cold water to ten of milk added, or poured into the milk, to destroy the animal heat, and to keep the cream from rising over night. There was water running through a cooler set in the center of the milk through the night. In the morning the cream was taken off, set one side; a portion of the evening's milk warmed with one of Mott's dairy furnaces to 110 deg. to bring the whole, with the morning's milk, to 90 deg.; annatto added to color lightly. The cream was warmed with new milk from the cows, thoroughly stirred; rennet sufficient to curdle the whole mass of milk put to the cream, stirred together, then poured into the milk, and thoroughly mixed by stirring; rennet used sufficient to curdle the milk in fifty minutes, according to strength. The curd was checked and broke carefully for ten minutes with a curd cutter; let curd settle for five minutes, drew off a portion of whey, and heated to 100 deg., and warmed the curd to 92 deg; worked very light and kept at 92 deg. for an hour or more, then warmed to 95 deg., worked light for 20 or 30 minutes. It was scalded at 100 deg. till thoroughly cooked, or for half an hour after the curd would squeak in the teeth. The whey was drawn off, the curd cooled a little, salted with the common Salina salt, 4 lbs. to 100 lbs. of curd; the curd was divided and pressed in two presses for twenty-four hours. After the curd was pressed an hour, the cheese was turned in the press, at which time the bandage was put on. When the cheese was taken from the press each face was rubbed with a little strong ley, stained with annatto, placed on a table, turned every day, greased lightly with whey butter, cured in a cool room on ground flour. First of January put in cheese boxes, placed in cool, dry cellar, kept there till taken out for exhibition.

The two new cheese on exhibition were made the 13th of July, 1854, from the milk of 48 cows; same process as the old except scalded a little less, salted 3 lbs. to 100 lbs. of curd.

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The cows were kept in good pasture, fed one pail of whey and one pint of corn meal ground, in the ear, to each cow per day The rennet was taken from calves three or four days old, dried, no curd used; prepared by soaking in clear water; salt added sufficient to keep sweet.

STATEMENT OF WM. C. YOUNG, CEDARVILLE, HERKIMER COUNTY.

2nd premium.

The sample of old cheese which I exhibit to compete for a premium offered for such cheese by the New-York State Agricultural Society was made from the evening's and morning's milk of thirty-four cows in one dairy, with no additional cream added, the cream that raised on the evening's milk being skimmed off before straining (into the same vessel) with the morning's milk, after the morning's milk was added, and the whole mass warmed gradually to 86 degrees heat, by steam passing into water that surrounds the second or inner tub that contains the milk; (this is always done with due care and moderation, so that excess of heat does not affect any part or portion of the milk to lessen its affinity, and cause an *unsameness* in the curd when coagulated.) The cream of the evening's milk is then *stirred* into several times its own bulk of warm new morning's milk, and poured through the same strainer with the mass, and thoroughly stirred together. Good sweet rennet is then immediately added, and thoroughly stirred in to coagulate and make a sound curd in from forty to sixty minutes; a slight tincture of anatto is put in with the rennet at the time of setting, except in the flower of grass, when the curd is a good rich cream color without artificial coloring; a very small amount of good anatto answers the purpose. The rennet is prepared by soaking calves' stomachs 12 to 24 hours, as the heat of the season may be, in one gallon of pure water to each stomach; the skins then taken out of the water, and the liquor thus obtained is made as salt as possible to keep, strained and settled as clear from sediment as possible, and then kept in earthen jugs or jars, as cool as possible, for use. Strict care is

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taken to stir and mix the liquor daily before using, so that a uniform strength may be relied on daily, which is an important landmark to all cheese makers.

When the curd appears set so that it will not adhere to the finger when thrust into it, and the whey settles clear in the cavity thus made, the breaking of curd is commenced by hand, regulating the process to the capacity or age and strength of the curd, until it is as fine as needed and as uniform in the size of the particles as possible, so that it will scald and work down alike, when the rennet is judged to have done its work; heat is then applied (as in heating the milk to set), and raised slowly to 100 degrees, or if the latter part of the season, to 104, which is sufficient to finish the scalding of any sized cheese if kept on long enough. After the first breaking up of the curd with the hands it is left to stand and settle twenty minutes, for the small particles (that have been disengaged in breaking) to unite with the mass. A portion of the whey is then drawn off to facilitate working; care is then taken to not allow the particles of curd that have been separated to reunite while scalding, so that it may be uniformly done (*an important item*); no breaking is done while scalding, as the curd is then tough, and will waste in breaking. When scalded sufficiently—which occupies from thirty to sixty minutes, and is known by the weight and squeaking quality of the curd, the whey is separated from it for salting; the curd is stirred constantly for ten or fifteen minutes to shrink out the whey, and cool the curd gradually and keep it from adhering together in large lumps, so that the salt when added will *season all alike*. One pound of barrel salt to 50 lbs. of pressed curd is then well mixed with it, and left to steep and season and cool before putting into the hoop, fifteen or thirty minutes as the weather may be. It is then pressed six hours, and turned in clean cloths, and pressed till the press is needed to press the next day's cheese, then taken out, and after drying a few hours the rind or outside of the cheese is painted with anatto dissolved in strong ley, made by leaching hardwood ashes; this, put on before greasing, penetrates the skin of the cheese, and toughens it so that it is not so apt to crack; and although quite red at first painting, it will change to a rich butter

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color, and not flake off as when put into the grease that the cheese is rubbed with. The cheeses are then kept on a shelf, in a temperature as uniform as possible as to heat and circulation of air, and turned and rubbed daily till cured for market.

The cheese exhibited were made as above described, in the month of September, after the excessive heat of the season was past, consequently were not exposed to high and rapid fermentation, and cured slowly without becoming porous. Six cheeses of different ages were selected prior to a disposal of the dairy in the fall of 1853, and put in separate boxes, and kept as cool as convenient without freezing, till spring; three of the six (those that had undergone a more rapid fermentation in the heat of summer), although *salter cheese*, and apparently sweet and solid in the fall, were found in spring (the 1st of May) to have molded inwardly, and lost their flavor and character for keeping through a second season, and were disposed of; the others were placed in the center of separate boxes, to hold four bushels of ground charcoal each, which was placed around them on all sides to a depth of from six to ten inches, and stored in a cool, dry cellar till fall; the object of this was to prevent, if possible, a second fermentation, which carries cheese past the point of maturity when they are most desirable to eat. On taking them out after the heat of the season was past they were found to be bright and free from mold, and but slightly changed in any quality, having retained their mild sweet flavor and perfect solidity.

STATEMENT OF J. & G. WILLIAMS, ROME—CHEESE WEIGHING 500 LBS.

The sample of cheese offered for exhibition by the subscribers was made on the 5th and 13th of July, from two milkings of about 250 cows, as follows: The two milkings being mixed, without the addition or removal of cream, in two tin vats, set in wooden ones, with a space between for water, the whole was raised to a temperature of 84° by steam conducted into the water between the vats; then anatto dissolved in ley, sufficient to give

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the desired color to the curd, and rennet enough to produce perfect coagulation in about forty-five minutes, were thoroughly mixed with the milk, which was covered with cloth and allowed to stand until by breaking the curd the whey would readily separate. The curd was then cut with a set of wooden blades, 1¼ inches apart, into squares, by moving the blades horizontally each way; the whole was then gently broken by the hands, and at the same time the heat raised as before to 90°, when it was allowed to stand ten or fifteen minutes to settle, and the whey drawn off from the top by a syphon.

The process of breaking and heating was renewed and kept up at intervals for two or three hours, and until the temperature was raised to 100°, taking care to stir it enough to keep the particles of curd separate. The curd having been thus perfected, was drained, and salted with 3 lbs. of Ashton Liverpool salt to each 100 lbs. cheese, pressed two days, then removed to the curing house, turned daily, and greased only when necessary to prevent cracking and molding. Rennet prepared by soaking in pure water and salt. Pressed in simple screw press.

IMPROVED GOVERNOR FOR WINDMILLS.

Halliday, McCray & Co., Ellington, Conn., were awarded the highest premium—a diploma and large silver medal—for the most valuable newly invented machine for the farmer, being a new application for a self-regulating wind mill for elevating water or other motive power.

The annexed engravings are views of an improvement in windmills, for which a patent was granted to Daniel Halliday, of Ellington, Conn., on the 29th of August, 1854.

Figure 1 is a perspective view, and figure 2 is a face view of the wing or sail ring, and parts of the governor. The same letters refer to like parts.

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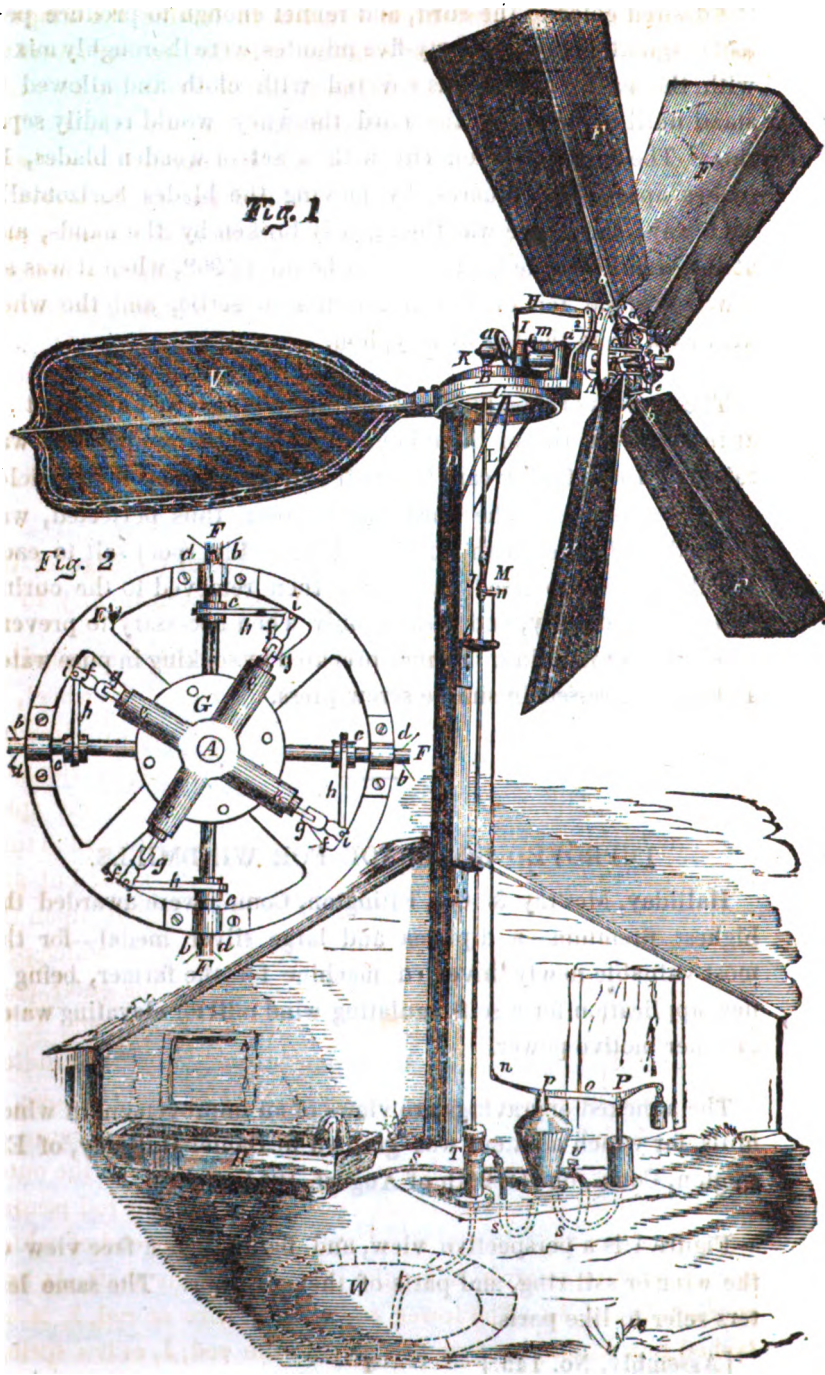

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The nature of the invention consists in having the wings or sails attached to moveable or rotating spindles having levers or equivalent devices connected to them, said levers being also connected to a head with wings rotating on the same shaft. The head has a lever connected to it, which is operated by a governor that slides the head upon the shaft, and causes the levers or their equivalents to turn the wings or sails, so as to present a proper resisting surface to the wind, and thereby produce a uniform velocity of the sails, which are made to have a greater or less obliquity, according to the velocity of the wind.

A represents a horizontal shaft which works in suitable bearings, *a a*, upon a cap, B, said cap working loosely upon a circular plate attached permanently to a proper support or framework, D, figure 1.

The shaft, A, projects some distance beyond the edge of the cap, B, and has a wheel, E, figure 2, attached permanently to it.

F represents the wings or sails, which are secured to spindles, *b*, said spindles passing radially through the rim of the wheel, E, and into its hub, the spindles being prevented from withdrawing by collars, *c*, which bear against the inner edge of the rim and bearings, *d*, figure 3, which are secured by screws over the spindles, the spindles being loose in the wheel, E, and allowed to turn upon their axes. Four wings or sails are represented, but any proper number may be used. G is a hub fitted loosely upon the shaft, A, and having projections, *e*, at its front end, to which projections small levers, *f*, are attached by pivots, *g*, the outer ends of the small levers, *f*, being secured to the ends of levers, *h*, by pivots, *i*. The levers, *h*, are secured permanently to the spindles, *b*, as shown in figure 2. The inner end of G has a groove, *j*, turned on it, in which groove a forked lever, H, fits, figure 1. The lever, H, is bent, and has its fulcrum at *k*, and to the outer end of it a wire or rod, I, is attached, said wire or rod passing down in a groove, *l*, in a vertical rod, J, the upper end of which is connected to a crank, K, on the inner end of the shaft, A, by a connecting rod, L. The lower end of the wire or rod, I, is attached to a sliding head or boss, M; on the rod, J, *m* is a spring,

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one end of which is connected to a vertical portion of the bent lever, H, and the opposite end to a projection on the inner bearing, *a*, of the shaft, A. The sliding head or boss, M, on the rod, J, has a recess, *n*, in it, in which a fork at one end of a lever, O, fits, said lever having its fulcrum at *p*. The opposite end of the lever, O, is attached by a pivot to a piston rod, P, the piston of which works within a cylinder. R. is a reservoir containing water, and S is a pipe which projects over the top of said reservoir; the opposite end of the pipe communicates with the outside cylinder, reservoir R, and a pump, T, at their bottoms, as in dotted lines, figure 1. The rod, J, it will be seen, is the piston rod of the pump, T; U is a cock in the pipe, S; V is a horizontal wing attached to the cap, B, for the purpose of keeping the wings or sails, F, facing the wind. In case the shaft, A, revolves too rapidly, the cock, U, is somewhat turned so as to check the free passage of water through the pipe, S, and the water will then be forced against the under side of the piston of the outside cylinder, and will raise it, and the head or boss, M, will consequently be moved down upon the rod, J, and the wire or rod, I, will draw down the horizontal arm of the lever, H, while the vertical arm, will force outward the head, G, on the shaft. A, arrow 2, and the levers, *f h*, will turn the spindles, *b*, and the wings or sails, F, move obliquely to the wind, and the motion of the mill will be decreased in a corresponding degree. When it is desired to increase the motion of the mill the cock, U, is opened, and the water having a free passage through the pipe, S, the head or boss, M, is raised upon the rod, J, and the head, G, on the shaft, A, brought back to its original position by the spring, *m*, the wings or sails presenting a greater surface to the wind. The spring, W, causes the lever, O, to resume its original position or depresses the piston in the outside cylinder, when the water has a free passage through the pipe, S.

In figure 1 the pump is represented as drawing water through the suction pipe, *t*, from the well, W, and forcing it through the air chamber into the reservoir. A crank being on the shaft, A, on the horizontal revolving head, and the rod, I, connected to

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this crank, a reciprocating motion is given to the piston of the pump, thus drawing and forcing out the water by single stroke alternately. With one valve opening inwards, and one outwards in the bed plate of the pump cylinder, it can work as a single-acting force pump, driving the water through the air chamber into the reservoir without any other connections or apparatus. This windmill is chiefly intended for farmers where a moderate power is required, and can be applied to various kinds of work as well as pumping water. The claim is for "attaching the spindles, *b*, of the wings, F, to the sliding head, G, by the levers, *b f*, and operating said head by the lever, H, and a governor of any proper construction, for the purpose of giving the desired obliquity to the wings or sails, thereby insuring an equal motion and power during the variable velocity of the wind."

Many of the most scientific, able and experienced mechanics and engineers in the United States have examined this machine, and pronounced it one of the most beautiful, useful and novel inventions of modern date, and just what the civilized world have looked for many centuries. It is made in the most thorough and durable manner, mostly of cast and wrought iron. The iron frames for the fans or wings are covered with thin boards or sail-cloth, according to the size of the machine.

By a simple, yet ingenious device, as the gale increases in severity the wings gradually turn around, change the angle at which they were set for a gentle breeze, present less and less resistance to the wind, till finally, when the tempest is raging at its height, little is presented to its power save their thin edges. As the fury of the gale abates the fans gradually resume their original position. The speed of the wind wheel is not increased by a powerful storm of wind, for it is as fully under the control of the regulator as the water wheel or steam engine. If this mill is well put up, it will require no care or attention whatever for weeks together.

The only reason why the wind for ages past has not been universally used as a motive power is well known to be the want of a *self-regulating* machine. In heavy gales, the wind wheel, as

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heretofore constructed, was either prostrated in hopeless ruin or revolved with such rapidity as to wear, heat and chafe, greatly injuring any kind of gearing attached, besides in bad weather requiring the constant care and anxiety of the owner. This difficulty is now entirely obviated, and the only objection that can possibly be urged is the inconstancy of the wind. To this objection we offer the following considerations: It requires no outlay or expense to run the wind engine, no men to tend or fuel to feed it, as with steam power. The mill is ready at any time, day or night, to be moved by the wind from any point of the compass, which will fill large tanks or ponds that can be used during the intervals of the winds blowing; so if the size of the mill, the pumps and reservoir are in proportion to the quantity of water required, there is a certainty of having an abundance through the year for railroad stations, farm yards, fish and duck ponds, irrigation, &c.

LIST OF APPLES

Exhibited at the New-York State Agricultural Society's Fair, in connexion with the New-York Horticultural Society, October, 1854, *by* J. W. Bailey, *Plattsburgh.* (*1st premium.*)

No. 1.	Early Strawberry,	5
2.	Summer Queen,	5
3.	Sapson,	3
4.	Garretson's Early,	5
5.	Kerry Pippin,	7
6.	Champlain,	5
7.	Scarlet Pearmain,	6
8.	Walworth,	5
9.	Bailey Spice,	9
10.	Porter,	7
11.	Alexander,	5
12.	Northern Sweet,	6
13.	Brittle Sweet,	5
14.	Autumn Strawberry,	6
15.	Jersey Sweet,	9

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No. 16. Late Wine, ... 6
17. Roseau, ... 5
18. Hawthornden, ... 4
19. Rambo of W. R. Prince, ... 5
20. Pomme Royale, ... 3
21. Boxford, ... 6
22. Holland Pippin, ... 5
23. Sailly Sweet, ... 4
24. Cheeseboro Russett, ... 5
25. Fall Harvey, ... 5
26. Rambo of B. V. French, ... 6
27. Fameuse, ... 6
28. Striped Fameuse, ... 6
29. Pound Sweet, ... 4
30. Maiden's Blush, ... 3
31. Ramsdell's Sweeting, ... 5
32. Tift's Sweet, ... 6
33. President, ... 4
34. Menagere, ... 4
35. Ribston Pippin, ... 6
36. Bourrassa, ... 6
37. Fall Pippin, ... 5
38. Pomme Grise, ... 6
39. Black Gilliflower, ... 5
40. Minister, ... 5
41. Westfield Seeknofurther, ... 6
42. Garden Stripe, ... 4
43. Hubbardston Nonsuch, ... 6
44. Belden or Red Cheek, ... 5
45. Ortley Pippin, ... 5
46. Blue Pearmain, ... 6
47. Red Canada, ... 4
48. Yellow Bellflower, ... 5
49. Wine or Strawberry, ... 5
50. Jonathan, ... 6
51. Winter Harvey, ... 5
52. Scarlet Nonpareil, ... 6
53. Dominie, ... 5

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No. 54.	Vandevere,	5
55.	R. I. Greening,	5
56.	Herefordshire Pearmain,	5
57.	Baldwin,	6
58.	Lady,	10
59.	Long Russett,	5
60.	Swaar,	6
61.	Northern Spy,	5
62.	Yellow Newtown Pippin,	5
63.	Holland Sweet,	4
64.	Roxbury Russett,	6
65.	Esopus Spitzenburg,	6
66.	Newtown Pippin (green),	5
67.	English Russett,	6
68.	American Golden Russett,	4
69.	Black Spitzenburg,	5
70.	Ladies' Sweet,	3
71.	Spice Sweet,	4

Note—The two varieties of Spitzenburg and the two varieties of Fameuse are always distinct in appearance.

Description and History of Miller's Seedling.

[This was adjudged by the Committee as a valuable fruit.]

James O. Miller, of Montgomery, Orange Co., N. Y., not being acquainted with the art of grafting or budding, set out in vacant places in his orchard a few trees grown from the seed in his garden. The soil being extremely rich the trees grew finely, and almost all, in the course of eight or ten years, bore several bushels of apples a-piece. They were nearly all of a good size; but the one which is offered as a seedling early attracted attention by the beauty and uniform smoothness of the fruit.

The tree is a good but not a profuse bearer; it bears equally every year, and commences ripening about the last of August, and the fruit ripens on the tree in succession to the first of October, when it should be gathered, and may be kept to the first of November. It has been tested for family use for pies and for stewing, and pronounced fully equal to the famous Fall pippin.

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Three specimens of it were presented to the late Mr. Downing, and received his warm commendation and promise of notice, but which was prevented by his untimely death.

JAMES O. MILLER, Jr.

DRESSING OF DEER SKINS AND MANUFACTURE OF MITTENS.

BY H. CHURCHILL, GLOVERSVILLE, N. Y.

The dressing of deer skins and their manufacture into mittens commenced about the year 1800, at Kingsboro', (one and a half miles north of us,) and was carried on in a small way for several years—two or three men at first making each from fifty to one hundred pairs per annum. Mr. James Burr (recently deceased) was the first one who made an effort to "peddle" buckskin mittens, which was about the year 1804. He started in January of that year with some 50 pairs in a pillow case, and made the circuit of Albany, Troy and Lansingburgh, and returned with about one half of his cargo—the merchants giving as a reason why they would not buy that they did not know what the article was. The following year the demand was a little better, which subsequently increased from year to year, and induced one after another into the business. The demand rapidly increased until up to the year 1830, when nearly the whole of the population of the north part of the town of Johnstown had engaged in the business of dressing skins, using their barns, cow sheds, wagon houses and all their out buildings, as their factories—manufacturing at that time some 50,000 dozen of mittens, averaging about $3.75 per dozen. The deer skins previous to, and up to this time, being obtained principally from the American Fur Company. About this time many of the original manufacturers, and their sons, began to think it might be a permanent business, and commenced settling in our place—making improvements in the use of their water power, building mills and shops—having made up their minds that so long as *boys* were born with hands, *men* would want buckskin mittens. From 1830 up to the present time (except the reverses of 1838 to 1841) the demand has rapidly increased, with which the manufacturers have endeavored to keep

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pace, until now, as near as we can estimate, the number of dozen annually made in our town (Gloversville being the seat of the greater part of it) being about 130,000 dozen of mittens and gloves, averaging, *this* year, about $7.50 per dozen, and making a total of about $1,000,000, employing some 500 males and about 3,000 females. The deer skins from which these goods are made (about 350,000 per annum) are obtained in about equal quantities from the western and southwestern States and Central America; this business alone requiring nearly all the deer skins that are taken on this continent. Gloversville, in 1828, when I located here, (then Stump city,) contained a school-house and eight dwellings; in 1846 it had grown to about 600 inhabitants. Now we have three fine churches, (Congregational, Baptist and Methodist Episcopal,) with full congregations, a public house, with the usual quantity of stores and mechanic shops, a bank with $150,000 capital, two steam mills, eight water mills, a seminary in process of building, and a neat, quiet village of 1,500 inhabitants, who never had intoxicating liquors sold in their midst, except about three months, since 1828.

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Annual Meeting of New-York State Agricultural Society.

WEDNESDAY, *February* 14, 1855.

The Annual Meeting of the State Agricultural Society was held in the Assembly Chamber at 12 o'clock this day. There was a large attendance of members of the Society—embodying representatives from every part of the State, eminent in the annals of the Society, and distinguished for their efforts to promote the cause of agricultural science and progress. Among the distinguished persons present from abroad were Dr. de Hamel, of the Imperial Academy of Sciences at St. Petersburgh; Hon. Marcus P. Wilder, of Boston, Corresponding Member, and President of the U. S. Agricultural Society; Professor Hudson, of Oberlin College, Ohio; and Mr. Berckmans, of New Jersey.

President Kelly, of Dutchess, called to order, and in so doing, congratulated the Society on the presence of so many of its founders and patrons, and on the accession of so many new members. He invoked harmony and good feeling in its proceedings and deliberations, and predicted the best results from the continued efforts of the Society to promote its important objects.

B. P. Johnson, the Corresponding Secretary of the Society, read the report of the Executive Committee, embracing the usual review of agricultural operations and improvements in farm practice during the year—and valuable suggestions derived from observation and experience of practical farmers, in regard to drainage, irrigation, manuring, &c.

On the subject of a permanent location, with the proper fixtures and accommodations, for holding the Annual Fairs of the Society, the Committee speak at some length, but without expressing an opinion, leaving the whole subject to the Society itself.

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The Treasurer's report was also read by the Secretary:

RECEIPTS.

1854. February.		
Cash in treasury,		$802 68
Received at annual meeting, from members, entries, &c.,		290 00
Lumber sold,		50 00
Treasurer's advances,		250 00
State appropriation,		700 00
Interest on loan,		70 00
Avails of old tent,		18 75
New-York subscription,		8,000 00
Receipts at Fair at New-York,	$9,275 00	
Less exchange, &c.,	26 30	
		9,248 70
Bond and mortgage, $2,000, and interest on same, $116, received,		2,116 00
On appropriation for Entomological survey,		1,000 00
		$22,546 13

EXPENDITURES.

Expenses of winter meeting,		$350 83	
Incidental expenses for the year,		727 82	
Printing and advertising,		604 82	
Museum expenses,		33 67	
Postages,		132 58	
Library expenses,		84 25	
Salaries, &c., travelling, expenses,		2,363 74	
Premiums, Saratoga Fair,	$381 20		
Premiums, winter meeting, 1854,	1,042 00		
Premiums, New-York Fair,	4,425 43		
		5,848 63	
Expenses of erections, and expenses of the Fair at New-York,		9,152 03	
Paid on Entomological survey,		400 00	
Interest on temporary loan,		25 40	
Glass ware for Floral hall,		8 58	
Paid Treasurer's advances,		250 00	
			19,982 35
			$2,563 78

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Medals on hand,.....	175 00
Premium books on hand,.....	165 00
	$2,903 78

February 13, 1855.

The report was accepted and approved.

Mr. Clark, of Otsego, here proposed to depart from the usual routine of business, for the purpose of taking up the question of permanent location. In order to bring the subject distinctly before the Society he moved a resolution as follows:

Resolved, That the amendment of the Constitution, proposed by Mr. Stevens at the last meeting, ["That the location of the Annual Fair be made permanent, or for a term of years, at one or more places,"] be adopted, to take effect after the year 1855.

Mr. Viele, of Rensselaer, moved to lay the resolution on the table. (Lost, 58 to 68.)

Mr. Burroughs, of Orleans, moved to postpone the consideration of the subject until this evening.

Mr. Geddes, of Onondaga, suggested that this question ought to be decided before the usual committee was appointed to report officers, and recommend the place of holding the next Fair. He expressed himself favorably inclined to adopt the suggestions of the committee in favor of a permanent location.

Mr. Cheever, of Saratoga, suggested that the resolution contemplated that the selection of a place this year should be made in the usual manner.

Mr. Conger, of Rockland, concurred in this view of the matter, and could see no necessity of acting in the matter now.

Mr. Randall, of Onondaga, moved to amend by striking out the words "to take effect after 1855." He desired to give the proposed change of the constitution immediate effect.

Mr. Peters, of Genesee, opposed the amendment. The Executive Committee would require, at least, one year to examine

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different locations, and receive proposals before fixing on a permanent location. He expressed himself in favor of several permanent locations for the accommodation of different sections of the State.

Mr. Randall replied that his amendment would not require the committee to locate permanently this year; but would leave them at liberty to do it this year or next.

Mr. Morris, of Westchester, favored the amendment.

Mr. Sherman, of Jefferson, also sustained the proposition to amend.

Mr. Cheever, of Saratoga, urged, that if the amendment of the constitution was to be made it should not be made to take effect this year. He urged that the southern tier had never yet had the benefit of a Fair, and that the people of that region ought not to be cut off this year from the anticipated and desired advantage of a location at Elmira for this year.

Mr. Butterfield, of Oneida, moved a substitute for the pending resolution—to the effect that the Executive Committee have power to locate the State Fair at some one place for a term not exceeding three years.

Mr. Williams, of Albany, opposed both the original and the substitute. He desired that the Society should retain in its own hands the power to locate from year to year the State Fair.

Mr. Clark explained that he proposed to except the present year from the operation of the amendment, because he regarded it as a matter of good faith, that the implied understanding last year that Elmira should be the next place for holding the Fair should be carried out.

Mr. Burroughs, of Orleans, in a speech of some length, opposed the project of a permanent location. He insisted that the Society, instead of being a State Society, would become a local institution, if the place of holding the annual fair was once fixed permanently, or for a term of years. He discussed the whole subject in all its bearings.

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Mr Eames favored the project of a permanent location of the State fairs.

The previous question was here moved, and ordered, and a vote was taken on Mr. Clark's resolution. The roll of members was called over—and there were, ayes 63, noes 107.

So the proposed amendment of the constitution was rejected.

Mr. J. S. Gould, of Hudson, presented for inspection a loaf of bread, made of common flour, and by machinery, and by a new application of the recognized principle of fermentation. Even sour flour could be made into very good bread by this process—which would keep as fresh and sweet, after being made ten days, as ordinary baker's bread after being made 24 hours. Three men could make 8,000 loaves of this bread in a day, and it could be furnished at a very low price.

Recess until 4 P. M. At close of recess,

Mr. L. W. Hall, of Onondaga, moved the appointment of the usual committee of 24—three from each judicial district, to be selected by the members from each district—to report the names of officers for the ensuing year, and to recommend a place for holding the next annual fair.

The several district delegations then retired, and made their selections of members of the committee, as follows:

First District—Messrs. John C. Jackson, R. B. Coleman, Ed. G Faile.

Second District—Messrs. John A. King, L. G. Morris, Saxton Smith.

Third District—Messrs. Anthony Van Bergen, E. P. Prentice, Geo. Vail.

Fourth District—Messrs. Samuel Cheever, Le Roy Mowry, Jonathan Tarbell.

Fifth District—Messrs. J. Wyman Jones, Vivus W. Smith, Jonathan A. Sherman.

Sixth District—Messrs. George Clark, Charles Morrell, S. P. Chapman.

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Seventh District—Messrs. De Witt C. Van Slyck, N. Thompson, John S. Clark.

Eighth District—Messrs. Hollis White, Silas M. Burroughs, S. S. Whallon.

Mr. Phelps, of Onondaga, moved that the secretary furnish the nominating committee with the places where the annual fairs have been held, and the avails of those exhibitions.

Mr. Randall, of Onondaga, gave notice that he will move at the next annual meeting of the New-York State Agricultural Society, to strike out of the second section of the constitution the words following, commencing in the fifth line, viz: "and five of the ex-presidents shall be *ex-officio* members of the Executive committee, and these five shall consist of the five ex-presidents whose term of office has last expired." Also, to strike out the word "*three*," and insert "seven," in the eighth line—so that to constitute a quorum the attendance of seven members shall be necessary.

Mr. Peters offered the following resolution:

Resolved, That the Society consider the appointment of Dr. A. Fitch to make a collection of the insects of this State, especially of those injurious to agriculture, as of great importance, and respectfully ask the Legislature to continue the appropriation. [Laid on the table by consent of mover.]

Senator Dickinson, being called upon, in the absence of the committee, to give the Society the benefit of his experience in fattening cattle, addressed the Society at great length on this subject, and much to the gratification of a large audience.

Mr. Hall, of Onondaga, gave notice of an amendment of the constitution, "that the location of the annual fairs be made permanent at one or more places."

Mr. Burroughs gave notice that at the next annual meeting an amendment to the constitution of the Society will be proposed, "to strike out the article which provides that one year's notice shall be given of amendments to the constitution."

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Mr. King, from the committee of 24, reported:

That the committee had directed that the result of the ballot on the location of the State fair should be stated—with the suggestion that the place having the highest vote should be selected, if the requisite bonds be furnished—if not, then to the place having the next highest, and so on. The vote stood:

Utica, 13; Elmira, 10; Watertown, 1.

The committee also recommended the following officers for the ensuing year:

President—Hon. SAMUEL CHEEVER, of Saratoga.

Vice-Presidents—JOHN C. JACKSON, ISAAC E. HAVILAND, GEORGE VAIL, JOHN McDONALD, JOHN A. SHERMAN, S. P. CHAPMAN, D. W. C. VAN SLYCK, W. W. WEED.

Executive Committee—Additional Members—T. S. FAXTON, E. G. FAILE, CHARLES MORRELL, ANTHONY VAN BERGEN, W. C. WATSON.

Corresponding Secretary—B. P. JOHNSON.

Recording Secretary—LUTHER TUCKER.

Treasurer—B. B. KIRTLAND.

Mr. A. B. Dickinson moved to substitute Elmira for Utica as the place for holding the annual fair.

Mr. Baldwin, of Onondaga, Mr. Morrell, of Tompkins, and Mr. Peters, of Genesee, sustained this change.

Mr. Hall, of Onondaga, opposed the amendment.

Mr. Sherman, of Jefferson, urged the claims of Watertown.

The question was taken by ayes and noes on substituting Elmira for Utica, and there were ayes 107, noes 80.

Mr. Clark, of Otsego, moved further to amend the report of the committee by striking out the name of Samuel Cheever, and substituting that of Charles Lee, of Penn Yan, for President.

Mr. Viele, of Rensselaer, moved that the report of the Committee be adopted.

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Mr. Prentice and Mr. Dickinson protested against this attempt to change the report of the committee in regard to officers—as calculated to excite bad feeling and lead to the worst results.

Mr. Clark explained his reason for moving to substitute Mr. Lee, was because the selection of Judge Cheever was made by the committee with reference to the location at Utica. That location having been changed he had moved the change in the location of the President. He disclaimed the slightest disrespect to Judge Cheever, and with-drew his motion.

The vote was then taken on adopting the report of the committee in regard to officers, and was unanimously adopted.

The meeting then proceeded to ballot for officers under the constitutional requisition—and the vote was unanimous for the officers recommended by the committee.

Recess to 8 o'clock to hear the address of Dr. Fitch on the Entomology of the State.

WEDNESDAY EVENING.

Mr. Kelly, the President, in the chair.

The President introduced Dr. Asa Fitch, the State Entomologist, who delivered a very able and instructive address on entomology, including a brief history of his examinations on insects injurious to fruits and vegetation, made under the direction of the Society the past year.

At the close of his address, on motion of Hon. John A. King, it was

Resolved, That the thanks of the Society be tendered to Dr. Asa Fitch, for his very able, scientific as well as practical address.

The resolution of Mr. Peters (ante 64) was taken up and adopted.

Society took a recess until Thursday at Agricultural Rooms, at call of President, to hear the reports of awarding committees.

THURSDAY, 12 O'CLOCK.

The President in the chair.

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The Secretary announced the awards as made by the respective committees. (Awards at close of volume.)

The following resolution was offered on behalf of A. B. Conger, of Rockland, and adopted.

Resolved, That in view of the question of locating the future Fairs of the Society at one or more points in the State in accordance with the proposed amendments to the constitution, and of the influence which the same is calculated to exert upon the agricultural interests of the State at large, the Executive Committee be requested to correspond with the officers of the county Societies for an expression of the opinions of the said several Societies, to be determined at their next Annual Fairs, by a majority vote of all the members present.

Recess until evening.

THURSDAY EVENING—ASSEMBLY CHAMBER.

The President, Mr. Kelly, in the chair.

Professor E. Carr, (of the Albany University,) chemist of the Society, was introduced by the President, and delivered a very instructive address on chemistry as applied to agriculture; and he particularly noticed the constituents of soils, and the method of their formation, accompanied with several interesting experiments.

At the close of his address Professor Woolworth moved that the thanks of the Society be presented to Professor Carr for his very able and interesting lecture.

The President, Mr. Kelly, then delivered the annual address, which was listened to with deep and marked attention.

He introduced to the Society, in closing his address, the Hon. Samuel Cheever, of Saratoga, the newly-elected President, who on taking the chair, addressed the Society. At the close of his address,

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Hon. Mr. Geddes, of Onondaga, rose and remarked that he was about to offer a resolution of thanks to the retiring President—not as a matter of form, but as most justly due to the gentleman, who had, in a manner which he had never seen equalled, presided over the meeting yesterday, and administered new rules in a body where no standing rules were adopted, with such admirable tact and firmness, in the most exciting debate where men's feelings were deeply enlisted, so as to secure the entire confidence of all, and conducted the Society to a speedy and harmonious result; and now in addition to this, his address, one of the ablest ever delivered before this Society, has added to my admiration of him. I therefore offer the following resolution:

Resolved, That the thanks of this Society be given to our late President, Mr. Kelly, for the able manner in which he has presided during the last year, and for his very excellent address just delivered, and that the same be published in pamphlet form, and in the Transactions of the Society. [Unanimously adopted.]

Professor Woolworth offered the following resolution, which was adopted:

Whereas, a bill is now before the Legislature proposing to apply the unclaimed deposits of the Savings Banks to the purposes of education:

Resolved, That the application of a portion of this fund, whenever it comes into the treasury of the State, to sustaining, in different parts of the State, courses of lectures on the application of science to agriculture, meets the most hearty concurrence of this Society.

Adjourned. B. P. JOHNSON, *Secretary*.

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ADDRESS,

BY WILLIAM KELLY, PRESIDENT.

[Delivered at the Annual Meeting, Feb. 15, 1855.]

In conformity with long-established custom in your Society, I venture to address you briefly on the subject of Agriculture, previous to retiring from the important and responsible position as President of this Society, to which I was called by your partial kindness a year since.

I am not vain enough to suppose that I can say anything which will be new to the greater part of my hearers, for so much has of late years been written and spoken on the subject that most of what the intelligent farmer now hears and reads consists of old, and to him well known facts, or too often a repetition of theories already disproved and discarded.

Do not infer from this remark that I set a low estimate on the benefits of such organizations as agricultural societies, or such meetings as the present; far different is my view of their importance.

It is impossible to look back over the history of agriculture, and trace the intimate connection between such societies and the great advances that have been made, without being convinced that they are the best means known to gather valuable agricultural knowledge, to interest the farmer, and to stimulate and encourage him to improvement.

The farmer is more isolated from companionship than most other men. He lives retired from the crowd—each morning the rising sun calls him to his daily labors, and it is only when the sun has again sunk below the horizon that he draws to his own fireside to enjoy the companionship of that circle, dearer to him

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than all the world besides. His view of the world is often well nigh circumscribed by the boundaries of his own neighborhood.

As he follows the plow, or silently engages in other farming duties, he has time for quiet thought and contemplation, such as men of active life in our cities and towns need for their own improvement, what they are ever looking forward to as the desired end of all their cares, and anxieties, and turmoil of mind, but what few ever attain. These thoughtful hours may be well spent if the mind is stored with facts acquired from books and observation. Indeed no man can possess true independence of mind who has not thus quietly thought and established within himself what he believes, and why he believes. The farmer who would improve his intellect must read, and if he would advance in his art he should (whenever favorable opportunities presented) associate with his brother farmers, to learn what they are doing, to compare his experience and opinions with theirs, thus to avail himself of their knowledge on some points, and to impart in return the results of his own experiments and observation.

What means can be better suited to bring about such an interchange of views than these societies? On the occasion of our meetings we come together as farmers, we feel that there is a cord of sympathy connecting us together, that our interests are alike, that whatever discovery or improvement is made in the science or art benefits not one but all; and if your experience coincides with mine as to the effect of such gatherings, we all leave them more than ever impressed with the dignity of our calling, and more than ever resolved to make new and increased efforts for its advancement.

I have said that the farmer's quiet, reflective life is well suited for mental improvement, provided the mind is supplied with proper food for thought; but in the absence of such aliment there is great fear that the intellect may loose in a degree its vigor, that a prejudiced and self opinionated character will be formed, and, as a consequence, there will be a settled hostility to all change, all new ideas connected with farming, and all new implements to lessen its labor, will be treated as visionary, fit only for novices and "book farmers."

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To this class belong some men of whom we have all heard, who to this day deny the merits even of such an indispensable implement as the horserake, and who, for aught I know, may be still plowing with their old wooden plows. They have no reasons for their opposition which we can respect, as we can in the instance of the old Scotch Covenanters, when the fanning-mill was first introduced among them about a century since. The old and faithful pastors, it is said, stood with uplifted hands in holy horror at the blasphemous machine, which by heaven-daring men was made to create *artificial* wind, and thus assume the prerogative of God himself, of whom they had read that "He bringeth the wind out of his treasuries." These good men preached earnestly against its wickedness, and greatly delayed its general adoption throughout Scotland.

You will all agree with me that we have among us too many men who are obstinately and blindly opposed to all that seems like innovation. I speak as a farmer. I admire a proper conservatism, that caution which leads one to examine carefully before adopting a new thing; but not that prejudice which would prevent examination, and would discourage by ridicule and every other means the honest effort of the inventor or man of science.

If such men would but study the history of agricultural progress, and learn what amazing advances have been made within the last century or even half century, they could not fail to become converts to the idea of future progress, and never again could they deny the possibility, nay *certainty*, of continued and rapid improvement.

Let us in imagination visit an English or Scotch farm in the latter part of the last century. Nothing was then known among the farmers generally of the importance of varying the crops on any field, but the same grain was sown year after year, until the field would no longer yield enough to pay for the labor employed in its tillage; then, exhausted in strength, and overgrown with weeds, it was suffered to rest, acquiring some little increase of fertility from the action of rain and atmosphere, until the possessor deemed it ready again for the plow, when the same wretched course as before was repeated.

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Clover (that invaluable fertilizer) was not cultivated to any extent; the artificial grasses, as they are called, were not then sown—the possibility of making a meadow was not believed. "Old turf, suitable either for grazing or for the scythe, was supposed to be a creation of centuries, and that a farmer who wished to lay down a meadow in his youth, must see the end of his three score years and ten, before he could possibly possess a piece of pasture capable of keeping a score of sheep or a couple of cows." Sinclair further says, it was by law made a penal offence to break up natural meadows, and so highly were they prized that the banks of rivers were usually thrown into commons, in order that the surrounding farmers might all have a share in the precious product. Every piece of land that was marshy, or could be rendered so, was devoted to the coarse grasses that might grow spontaneously upon it; wherever the water issuing from the springs or brooks overspread a piece of ground, making it too moist for cultivation, it was dignified with the name of meadow, and prized as more valuable than any other part of the farm. Instead of draining such ground, and introducing better herbage, pains were taken to increase the moisture, for quantity and not quality was the end aimed at; and on such food were most of the cattle wintered. The appetite of starvation could alone have made it palatable.

Roots and other hoeing crops were not then common; their cultivation as a means of mellowing the land and cleaning it from weeds, and their value as a nutritious and succulent food for animals, seems to have been unknown or unappreciated.

As a consequence of the great scarcity of winter food for animals of the farm, but few were kept, and those mainly of a common, hardy sort, suited to the severities they had to endure. I speak now of the farmers generally, for even at this period there were a few liberal minded and enterprising men, such as Bakewell and Ellman, Colling and Tompkins, who had begun to breed sheep and cattle with a view to improvement, and in whose hands the distinctive characteristics of some of the admirable varieties we now possess had begun to be fixed.

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The proper and economical management of manures was not regarded; the small quantity in each barn yard, after lying exposed to sun and storm, was spread on the few acres of infield which lay close to the buildings; whilst all the remainder, the outfield as it was termed, never had any applied to it. No green manures, such as clover, were plowed in to enrich the soil.

The science of Agricultural Chemistry was as yet undiscovered, indeed it is but forty years since that truly great man (Davy) gave an insight into this important subject, by analyzing soils, and thus proving the necessity for certain chemical properties, to produce rapid and healthful growth. No purely chemical agent except lime was applied, that only in districts near to lime quarries, and there often in such large quantities, or so frequently, as to injure rather than benefit. We all know that the use of lime in agriculture is of ancient date. Pliny speaks of it as in use among the Roman farmers, but its special chemical action on vegetation was certainly unknown.

The implements of husbandry were rude and inefficient. The unwieldly plow, with its misshapen wooden mould board, required four or six horses to plow a furrow four inches in depth; shallow plowing was therefore universal. There were but few labor saving implements of any kind; there was no good thrasher, no horse rake, no cradle, no cultivator, no clod crusher, no drill nor broadcast sower, no mower, no reaper.

There was little or no drainage of surface water, for the reasons I have already stated. Thorough or under drainage was never practiced; and so I might go on, but I have said enough to give you some idea of the condition of the farming interest at the period I have named.

What a contrast does the aspect of farming in Scotland and England present at this day! For we are all ready to admit that they are now the best cultivated countries, nay, the *garden spots* of the world.

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The question naturally arises in the mind, how has this improvement been brought about? It has not been done at a single bound, but gradually, step by step; it is the result of constant and persevering labor and intelligence.

The first great movement seems to have been this: Somehow, the attention of intelligent men was directed to the subject of a diversity or rotation of crops, as being less exhausting to land than the method then common, and after repeated trials, which proved its great value, the practice gradually spread, until a system of rotation was almost universally adopted, very similar in the main, but modified in a measure by climate, soil, &c., the necessity of a hoeing crop as one in the series was felt, and thus the culture of the turnip, and other root crops, was thoroughly established.

And now attention was called to the possibility of cultivating grasses, and forming artificial meadows. Happily Great Britain has had, and now has among her noble and wealthy, men proud of the title of "*farmer*," men of intelligence and zeal, inspired with a desire to acquire and spread practical knowledge among the farmers generally. Such a man was John, sixth Duke of Bedford, who has immortalized himself in the farming annals of the world, by the thorough, careful and continued experiments in the culture and comparative values of grasses which he caused to be carried on at his estate of Woburn, the analyses of the grasses designed to show their nutritive properties, being conducted by that eminent chemist, Sir Humphrey Davy. Such encouragement and experiments led to the general culture of the valuable grasses, and this was perhaps the most important advance, because of its immediate results, that has been made in the history of modern agriculture.

For now there was ample and proper food for all the domestic animals, and forthwith great attention was paid to the rearing of cattle and sheep; their numbers increased rapidly; ample encouragement and a fresh stimulus was given to those men who studied to improve by careful breeding the animals of the farm; and, as a result, the world has this day the majestic Short-horn

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Durham, the thrifty Hereford, the symmetrical Devon, the milk-giving Ayrshire—but I cannot here enumerate all the well marked varieties of horned animals, nor can I repeat to you the names nor the merits of the valuable improved breeds of sheep which now adorn so many of your farms.

No longer was it necessary to cherish every swampy spot, for its rank growth of weeds and rushes—but the ditcher, with his omnipotent spade, attacked them, drew off the water which had drowned them, and rendered fit for the plow the most productive of land.

Drainage, once begun, has been persevered in; at first resorted to for the purpose of removing surface water, it is now employed to carry off all surplus moisture, but not until it has deposited its fertilizing properties in the land through which it is made to pass.

The stock of animals being, as I have said, much increased, the farmer had more manure to restore to his land, and he was taught how to manage and make the most of it. The cultivation of clover, and the plowing in of that and other green manures, have also had much to do with the increased fertility of the whole country.

Agricultural Chemistry has, too, unlocked her mysteries, and taught the farmer wherein his soil was deficient in fertile properties, and how he might most cheaply and readily supply such defect; so have been introduced the various animal and mineral manures, now so well known, such as bone dust, super-phosphate of lime, sulphate of lime, sulphate of ammonia, the alkaline salts, guano, &c., &c.

Let me here say that this list is destined to be greatly enlarged, and chemistry with its piercing eye is to discover, and with its powerful grasp is to draw out elements of fertilization from sources not now anticipated.

I will allude to a most important discovery of this nature which has recently been made by a citizen of this State,* (now present,) and which he has kindly described to me.

* Mr. William S. De Zeng, of Geneva, N. Y.

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He has discovered a method for securing a vast amount of fertilizing material from the hitherto worthless refuse of the iron furnace. By a process which he states to be simple and cheap, he obtains silicate of lime in the form of an impalpable powder, in a fit state to apply to the land and to nourish vegetation. These substances are known to be highly necessary for the growth of all the grains and grasses, and, if afforded at a moderate price, the article must become a favorite fertilizer. I envy the man who has done so much to add to the productiveness of his country.

But in going forward, as the British farmer has done, you are not to suppose that he has all this time adhered to his massive and ponderous old plow. No; the inventive genius of the mechanic has been stimulated—he has produced light and efficient plows, enabling the farmer to do twice the work with half the labor. He is no longer content with a furrow three or four inches deep, it must be eight or ten, and this often followed by the subsoil plow, to loosen the earth still deeper. The steam engine has been employed to operate the thrasher, the feed mill and other stationary machinery, and a great variety of labor-saving implements have been introduced, among them many of American invention have been brought into extensive use, and met with a generous commendation.

But it is unnecessary for me to pursue the subject further. I do not hesitate to say that the eminent prosperity and power and wealth of Great Britain, this day, are owing more to the vast increase of her farming products, because of improved husbandry, than to any other cause whatever.

And, gentlemen, what a stimulus should this thought be to us; for here in the United States, the prosperity of the whole nation rests even more certainly upon the success of the agriculturist. By the last census returns, it appears that two millions four hundred thousand of our free male population are employed in agriculture, whilst the next highest on the list of professions or pursuits are, carpenters, only one hundred and eighty-four thousand; shoemakers, one hundred and thirty thousand; merchants,

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one hundred thousand. The agricultural products of a single year are stated to exceed largely the sum of one thousand millions of dollars.

In view of such facts as these, I am oppressed when I think of the responsibility which rests upon us individually and as a Society—and the vast importance, because of its extensive bearing, of every improvement which is introduced in farming.

As an illustration in a single department, let me allude to the entomological survey of Dr. Fitch, under your auspices. He is engaged, as you have heard, in studying the habits of insects injurious to vegetation, and discovering means to prevent or lessen their ravages. If he shall succeed in teaching us how to destroy a single insect, the wheat midge, he will thereby increase the product of this State alone many millions of dollars per annum.

Let us feel the importance of our calling, then, in a national point of view, and let patriotism, if no other motive, induce us to persevere in our efforts to increase the nation's wealth and power, and true independence, by *compelling* the earth to yield greater and still greater returns to the husbandman.

The most efficient agents in producing the amazing progress which I have attempted to describe, have been the agricultural press and the agricultural societies of Britain. Let this fact serve to encourage us in our organizations; they are essential not alone to maintain a lively interest and excite a sympathy among farmers, one towards another, but they are necessary to the collection and diffusion of knowledge and the encouragement of enterprise.

The diversified objects of these societies seem not to be known nor appreciated as they should be. Many suppose their whole business is to get up an attractive annual exhibition, and distribute premiums to the best specimens in every department there shown, but this, though important, is but a means to an end.

I was struck lately in reading the charter of the Royal Agricultural Society of England, with the enumeration of the means it employs to advance the great object for which it was constituted —allow me to read them to you.

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First. To embody such information contained in agricultural publications and in other scientific works, as have been proved by practical experience to be useful to the cultivators of the soil.

Second. To correspond with agricultural, horticultural and other scientiffc societies, and to select from such correspondence all information which, according to the opinion of the society, may be likely to lead to practical benefit in the cultivation of the soil.

Third. To pay to the occupier of land or any other person who shall undertake, at the request of the society, to ascertain by any experiment, how far such information leads to useful results in practice, a remuneration for any loss he may incur by so doing.

Fourth. To encourage men of science in their attention to the improvement of agricultural implements, the construction of farm buildings and cottages, the application of chemistry to the general purposes of agriculture, the destruction of insects injurious to vegetation, and the eradication of weeds.

Fifth. To promote the discovery of new varieties of grain and other vegetables useful to man, or for the food of domestic animals.

Sixth. To collect information with regard to the management of woods, plantations and fences, and on every subject connected with rural improvement.

Seventh. To make provision for the improvement of the education of those who depend upon the cultivation of the soil for their support.

Eighth. To take measures for improving the veterinary art, as applied to cattle, sheep and pigs.

Ninth. At the meetings of the society in the country, by the distribution of prizes, and by other means, to encourage the best modes of farm cultivation, and the breed of live stock.

Tenth. To promote the comfort and welfare of laborers, and to encourage the improved management of their cottages and gardens.

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These are the numerous and varied duties which that society has assumed. We may point with just pride to our volumes of Transactions, in proof of the fact that our efforts, though not identical, have been and are quite as broad and comprehensive.

Does any one, after looking back with me over the past, despair, or even doubt in regard to the future? Have we not everything to encourage us to persevere in our efforts?

We must ever bear in mind that this is, in all things, a progressive age, the most wonderful that the world ever saw. Witness the steamboat, the railroad, the locomotive, the telegraph, and the thousand improvements constantly making in all the industrial arts. Is ours alone to be a laggard in this race? No, I venture to predict that the next fifty years will see such advances that the men who meet here at the end of that period, and occupy your seats, will smile at the apparent self-satisfaction with which we regard the present condition of our art.

In this connection let me repeat one idea of progress. Among other things which have been spoken of as probable is the application to a great variety of uses, of steam, that worker with sinews of iron. It is, as we know, already applied to the stationary machinery on many large farms, but it is to take, so says the prediction, to some extent, the place of the horse and the ox in the preparation of our land for seed; not that the fierce and powerful locomotive is to be hitched before a plow and driven in the furrow like a well broke ox; instead of the plow he is to draw or make revolve behind him a cylinder, with scores of steel picks radiating from its surface, which shall penetrate the earth to any desired depth, pulverize it, and by a single operation render it fit for the seed.

Imagine such an engine breathing fire and steam, taking its course over an extended prairie, followed by this hundred-handed Briareus; before him is the hard unyielding sod, behind him, in a broad track, is the finely tilled earth, mellow as a garden bed. This is a single idea of progress, who will say that it is impossible?

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In reflecting on the present condition of farming husbandry in our country as compared with Great Britain, we must heartily and thankfully express our obligations for the examples she has set us, and acknowledge that we are behind her in the race of improvement. In a single department connected with farming, we have more than equalled her. I allude to the invention of useful farm implements; and in another point we have excelled her, that is in the appreciation and extensive circulation of our many valuable agricultural papers. But in the improvement of animals by breeding, in careful tillage of the land, in systematic husbandry, in judicious and liberal application of manures, and in the important practices of irrigation and of drainage, she is far in advance of us.

Allow me here to digress a moment for the purpose of saying a few words on the subject of thorough drainage. After some reading, reflection and experience, I am led to the opinion that this is the most permanently valuable process in the tillage of land that has ever been introduced, and is destined to add to the productiveness of our farms immensely. It is properly applicable to nearly all land, and though it is especially valuable to stiff soils, yet it is greatly beneficial to all which have not an exceedingly porous sub-soil.

Thorough drainage with tile was begun here about the year 1839, by John Johnston, Esq , a distinguished farmer of Seneca county, the drain tiles being made by hand. About the year 1848, his neighbor, the late John Delafield, imported a machine for moulding them by power, and since that time their use has rapidly increased. Among those who have drained extensively, and who, by example and precept, have sought to commend the practice to others are Messrs. Swan, Yeomans, Woolsey and others. Some of these gentlemen have made reports to the society, and to those papers, which may be found in our Transactions, let me refer you for information as to their mode of performing the work, and the advantages they have derived from it.

We are all familiar with the uses of ordinary drains to carry off surface water, and the overflow from springs, but thorough drainage accomplishes this, and much more. The rain which

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falls on heavy undrained land in the autumn remains in or on the ground till a late period in the spring, the ground continues too wet for the plow till the season is far advanced, and when the seed is put in the ground it has so cold a reception that it does not germinate rapidly and healthfully. Summer soon comes on, and a drouth begins to affect vegetation, the moisture in our damp field evaporates; the soil, from being overloaded with wet, becomes suddenly dry, it bakes and cracks under the rays of the sun, and our grain suffers, perhaps a feeble crop is gathered. And now the time approaches for putting in our winter grain; but alas, rain sets in and the ground is once more saturated with water, small pools perhaps visible here and there upon the surface, and again the plowing must be delayed till the earth becomes dry enough. This is a brief but true picture, which many a farmer will unite with me in bearing testimony, is confirmed by his own experience. Now, if under drainage will remove these difficulties, it will accomplish most important results and pay well for its application, but it will do more than this.

I have intimated that by means of such drainage there may be much earlier cultivation in the spring and much later in the fall. The mechanical preparation of the land may be therefore more careful and thorough, no fear of wet weather forcing the farmer against his wish to till his land in a hurried and slovenly manner. And when the seed is thus sown in proper time, on land well prepared, it is ready for the nourishment which is to descend upon it in those showers of rain with which God blesses his earth. This rain water, with its stores of ammonia and carbon, enters the ground, it percolates the soil and finds its way slowly, but certainly, to the subterranean channels prepared for it; but in its way thither it pays tribute—for it leaves in the soil, for the use of vegetation, the valuable properties I have named; and it renders the sub-soil more porous to the depth of the drain. The water is in turn followed by the air which circulates through the earth and the drain. I need not tell you that the atmosphere not only contains elements favorable to vegetation, but that it

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deposits moisture constantly as it passes through the cool earth. When the water and air have thus found their way, the roots of plants will surely follow, and find a supply of moisture even in time of drouth. Again, the frosts of winter will penetrate deeper than before, loosening and rendering more mellow the stiff and once impracticable sub-soil.

At a meeting of agriculturists in France, lately, the president is said to have illustrated the utility of drainage in this familiar manner: "Take this flower pot," said he; "what is the meaning of this small hole at the bottom? To renew the water. And why to renew the water? Because it gives life or it gives death: life when it is made to pass through the bed of earth, for it leaves with the soil its productive principles, and renders soluble the nutritive properties destined to nourish the plant; death, on the other hand, when it remains in the pot, for it soon becomes putrid and rots the roots, and also prevents new water from penetrating."

Deep plowing should succeed drainage; each year the furrow ought to be deeper than before, throwing up to the surface for the action of the atmosphere and light and heat a portion of the sub-soil. This practice persevered in, with good cultivation and the aid of the sub-soil plow, we may in time make our soil twice or thrice as deep as it now is.

But to return. In my opinion the one thing in which we are most backward, in which we are behind not alone England, but most of the continental nations, is in not having made any proper provision for the training and scientific instruction of the sons of farmers, with a view to their special pursuit—in not having established an agricultural college, or scientific school, in connection with an experimental farm. The advantages of such instruction are so self-evident that I need not enlarge upon them. The value of an experimental farm is, I think, not so well appreciated; allow me to explain my idea of it. I do not mean a model farm, which shall serve *only* as an example of good farming, but one possessing a variety of soils, so as to permit an extensive range of experiments, where may be tested the comparative value

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of different varieties of grain, or any new vegetables or plants that may be discovered; the relative advantages of different modes of tillage; the effects of various manures and their relative value, as fertilizers, by actual trial, as well as by analysis; the usefulness and economy in labor, and correct mechanical principles of any new machines or implements that may be invented, and so on.

We greatly need to have such tests applied by those on whom we can rely. At present there is no authority to which we are willing to yield our opinions. If an intelligent, pains-taking man discovers an important fact, he may communicate it to the world through the columns of one of our numerous journals; but in the very next column is perhaps the crude and false theory of some superficial writer, or, worse still, the essay of some agricultural quack, contradicting the very theory which it has cost so much time and patient application to determine. How are we to know which of them is entitled to consideration and confidence?

But if we had such a farm as I speak of, conducted by able, honest, persevering men, every fact that they proclaimed to the world would be received without a doubt, and every recommendation would be gladly and universally adopted.

And here I must pause to pay my humble tribute of admiration and respect to the memory of that enlightened, energetic and liberal lover of agriculture and learning, John Delafield, a name that we ought to treasure as the impersonation of what a farmer ought to be. He took a deep interest in the establishment of such an institution as I have described. He had, by persevering efforts, obtained an admirable charter from the Legislature; he had prepared most carefully an elaborate system of instruction and discipline; he had nearly succeeded in raising the necessary funds to put it in operation, and had consented to devote his great talents and experience to its management, when he was suddenly removed by death.

This work stands where he left it; no man has yet been found worthy to wear his mantle, or qualified in all respects to carry out his great design.

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But the time must come, and I trust it may be soon, when the State of New-York shall, among her many noble institutions of learning, possess one devoted to the cause of agricultural education—*a farmers' college*, which shall be a model for the imitation of other States, and a just cause of pride to our own. I am led to hope that this event is much nearer than I had supposed. During the time of this annual meeting the project has assumed a form which gives great hopes for success.

A petition is to be presented to the honorable the Legislature for the sum of forty thousand dollars, which, it is believed, will be granted on the condition that an equal sum shall be raised by private subscription. If such a bill shall be passed, there is no doubt but that the liberality of our intelligent farmers will secure the grant. Each of us may do something to push forward this movement, by signing the petition to the Legislature, and exerting any influence we may possess with members of that honorable body, and by contributing to the necessary fund.

Before closing these remarks, I will very briefly allude to the history of our Society during the past year. The full and able report of the Secretary leaves me little to say on the subject; he has detailed the operations of the Society, and in doing so has referred to that fearful drouth which well nigh destroyed vegetation, and seemed as though sent to teach us our dependence on a higher than mortal power. I cannot, therefore, congratulate you, my brother farmers, on the prosperous condition of our pursuit; yet we have cause for gratitude that there is still enough for man and beast, and that no dread of famine overshadows and darkens our land.

Owing to this, and perhaps other causes, our annual exhibition did not present so gratifying a variety of products as usual, neither was the attendance of farmers so large as was expected. In some departments the display was of unusual excellence, never perhaps equaled at any of our former shows.

I cannot retire from this position without thus publicly acknowledging my obligations to our able, courteous and laborious

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Secretary, for his efficient services, and for his considerate kindness to me personally during the past year, making up by increased diligence on his part, for any lack of knowledge or skill on mine.

To the Treasurer, and to the members of the Executive committee generally, I owe many thanks; but I cannot sufficiently express my sense of gratitude to the members of the New-York local committee, for their liberality, and for their arduous and unwearied, yet cheerful labors in connection with the necessary duties involved in the arrangements for the annual exhibition.

And now a single duty alone remains for me to perform, before my official life is closed, but that is a most agreeable duty—it is to introduce to you our new president, Hon. Samuel Cheever, of Saratoga county.

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ADDRESS.

ADDRESS OF HON. SAMUEL CHEEVER, OF SARATOGA COUNTY, BEFORE THE NEW YORK AGRICULTURAL SOCIETY, UPON TAKING THE CHAIR AS PRESIDENT, FEBRUARY 15, 1855.

Gentlemen—I sincerely thank you for this expression of your confidence, in assigning me the highest place within your gift.

I can not, however, but feel a great distrust in my capacity to meet the responsible duties connected with the office you have placed in my hands, and that distrust is not diminished when I reflect that I am to fill the place so well filled by the distinguished men who have preceded me. But my apprehensions are much relieved from the fact that the labor and responsibilities of the presiding officer of the Society are greatly diminished by the able and efficient body of men you place about him in your Executive committee. That committee, I am gratified to know, from the reputation of all of its members, and from a long personal acquaintance with many of them, you have again made up of men in whose hands you may safely confide the interests and the reputation of your institution.

The achievements of your Society have been such as to be peculiarly matter of gratification and of pride to all its members. The exhibitions at your fairs of animals of all classes, of farm and other useful implements of mechanical skill, and of models from inventive genius, have been of a character to give it a high rank, if not the highest among the institutions of its class in this country, and it is probably not a breach of modesty to say, that the volume of transactions annually put forth by your secretary, under the supervision of your Executive committee, gives to the world a mass of practical and scientific agricultural matter that does not find its equal in any work of its kind.

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This matter is republished, and some of it translated into other languages in Europe, and read and commented upon in a manner to make you all feel a just pride that you are members of a Society so extensively and so favorably known. For these volumes are we indebted to your labors, to the skill and labor of your officers, but mainly to the experience and to the well-directed and arduous labor of your secretary, Mr. Johnson.

It is gratifying to know that hitherto a general spirit of harmony and kind feeling has existed between the members of the Society, and amongst its officers, and it is sincerely to be hoped that the same feelings shall characterize its future deliberations. The reputation and the usefulness of the Society cannot but suffer in proportion as it shall be visited by any disturbing elements. It has been brought to where it is by the labor of more than twenty years, gratuitously bestowed by some of the best men in the State, and it is hoped that its success will not be hazarded by any disturbing causes, unless it shall be upon a well founded confidence that its fortunes are to be placed in the keeping of purer men, with better intellects than such as have hitherto been drawn to its support.

I hope the interests of the Society will not suffer in the hands of the officers to whom you have now confided them; I give you the assurance of my best efforts that they shall not. But the success of the next as well as of the past years, depends more upon the members of the Society and the public than upon the officers. We cannot have a successful fair unless the public attend it; we cannot have an attractive one unless exhibitors go there to exhibit. You have, on a full and fair vote of the Society itself, decided when and where the autumn fair shall be held. It is to be hoped that here, where we have agreed that a majority shall govern, no one will withhold his animals or his articles from exhibition because he has been outvoted. Every facility for the forwarding of animals and articles which the officers of the Society can afford shall be afforded, and also so far as may be, accommodation and safe keeping while there.

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MANAGEMENT OF FARMS.

The Committee on Farm Management report:

But two applications for premiums were presented. Both were very interesting, especially in the accounts of experiments, and we hope each will receive careful and attentive perusal. The locations were distant from each other, and the soil in some respects dissimilar. On one, grain was the principal product, on the other, a mixed husbandry was pursued, in which the production of beef and pork was prominent. Both appear to be under the management of practical working men, who are careful of the present, and endeavoring, by careful and well-directed experiments, to render the farm more productive. In this respect many farmers may take useful lessons of them.

We award the first premium to William P. Otley, of Phelps, Ontario county, and the second to George W. Coffin, of Amenia, Dutchess county.

Perhaps the committee would more easily have decided which was entitled to the first premium if its members could have had the privilege of viewing the farms in the month of July last.

That the awards of the Farm committee may hereafter be made more satisfactorily to its members, and with better opportunities to do justice to the Society and all its members, we respectfully recommend that each person who shall offer his farm for premiums shall notify the secretary as early as the fifteenth of June, and that the farm committee be required to view each farm so offered, some time in the month of July, for at that time the cleanliness, productiveness, and general management of a farm can be better judged of than at any other one time.

Whatever answers the Society may require from the applicants to questions propounded by the secretary may be handed in as now, and the award made at the winter meeting.

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Different individuals vary much in the tact of story telling, or even relating facts. To one embellishment is natural, while another has no gift for it. One can make facts appear a little better than others think justifiable, while another fails to state facts in an engaging and attractive manner. Personal inspection by the committee would tend to neutralize these inequalities, and give better opportunity for correct awards. The Society should pay the necessary expenses of each member of the farm committee while engaged in its services.

E. MARKS,
E. W. BUSHNELL,
L. T. MARSHALL,
Committee.

Wm. P. Otley's farm, Phelps, Ontario county.

First Premium, $50.00.

SOILS.

1. My farm consists of 100 acres, of which fifteen are in wood land, leaving eighty-five acres improved; three acres in highway, no waste lands.

2. The nature of my soil is a gravelly loam, and muck with a tincture of clay, the subsoil about the same, with a lighter color, and porous. There are a few limestones. The rocks found, are the granite and quartz.

3. I consider the best mode of improving my soil is a three year lay of clover, turning it under about the month of June for wheat, or the 1st of May for corn, with the application of barnyard manure. As I have no clay or sand or clear gravel, I have had no experience in the improving of them.

4. I usually plow from seven to ten inches deep. The effect of deep plowing on soils that I have knowledge of is a good one; *first*, it loosens the soil a greater depth for the roots of plants to penetrate; *second*, it acts as an under drain; it will endure drought, give ease to the working of it for time to come, with other advantages too numerous to mention.

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5. I have made experiments to test the difference in a succeeding crop, also between shallow, common and deep plowing. (See statement A at end of report.)

6. I have used the subsoil plow. Its effects were that the first crop was unusually light, from turning up unnatural soils; but the succeeding crops were productive and the result satisfactory. I have drained a good portion of my farm with beneficial results, using tile and stone for filling.

7. The trees of my soil are the sugar or hard maple, red and white beech, bass, white ash, bitternut, three kinds of elm, the water, the red or slippery, the rock or white elm, a few butternut and wild cherry. The plants are the narrow dock, burdock, catnip, mandrake, tory burr, poke weed, Canada and bull thistles, milkweed, mulleins, and wild turnip.

MANURES.

8. I apply from thirty to forty loads, thirty bushels each, per acre, according to its value. As regards the management of my manures, I draw out direct from the barn yard in a green state to the field that I intend to plant with corn, drop it into heaps regularly, one rod apart each way, spreading it no faster than I plow. A portion of it is kept under cover; it would be of decided benefit if it all was thus sheltered. There is no manure cellar under my barn.

9. My means for making manure are the straw of twelve acres of wheat, twelve acres of barley, six of oats, the stalks of twelve acres of corn. I mow twelve acres of clover and timothy, which are all fed to my stock, which consists of about sixty-five head in all, besides hogs, of which I usually winter about six head. My stock are shut into my yards at the commencement of feeding, and remain till turning out to grass, water being brought into the yard by logs from spring. My straw is thrown out daily, and by regularly using it plentifully under those that are stabled, not requiring them to eat more of it than they desire, after being fed from other sources. I manufacture about 200 loads annually, and apply the same.

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10. My manure is applied in a green state. I prefer using it in a green state for all crops, under all circumstances, except for barley or garden purposes; as barley is of a quick growth, it is essential that the manure should be rotted.

11. I could cheaply increase my supply of manure by a little extra labor.

12. I have not used lime, guano, &c.

TILLAGE CROPS.

13. I till from seventy to seventy-five acres; I have a newly chopped piece of ten acres that I use for pasture; have not broke it up yet. The fields are occupied as follows: 12 acres in wheat, 12 in barley, 12 in corn and potatoes, 12 as meadow, 12 as pasture, 12 with oats and for orchard and garden purposes.

14. The amount of seed sown, &c., is as follows, in rotation, commencing with corn: Of corn I plant or drill from six to seven quarts per acre, from the tenth to the 25th of May. The cultivation is as follows: Take a three year lay of clover, cover it with manure if possible, break it up immediately before planting with a double plow eight inches deep, harrow with light harrow to avoid tearing up turf, then drill three and a half feet in width of row, dropping one kernel at eight inches in row, together with ashes and plaster; then roll, and as soon as up pass through with one-horse cultivator; continue to cultivate till the middle of June; hoe once; cut up about the first of September, five rows into one, shocks large, as the stalks will be of a better quality; husk during fall; product usually fifty bushels per acre.

Barley, two and a half bushels per acre, drilled, from the first of April to the first of May. Cultivation: Take the corn stubble mentioned above; plow as early as possible in good order, harrow fine, drill, roll, harvest when head of grain is of a light purple, with reaping machine, lay one day in gavils as thrown from machine, rake with horse rake, cock it up, let it remain till well cured, then draw; thrash it at convenience; product from 25 to 50 bushels per acre.

Wheat, two bushels per acre, drilled the first week in September; cultivation as the above, or barley stubble plowed as soon as

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barley is off, with double plow, from eight to ten inches deep, in lands two rods wide; harrow fine just before time to drill; drill, clean out furrows and water furrows, harvest just before the berry becomes brittle, cut with reaping machine, bind, shock in the English mode, two and two; draw as soon as cured; product usually from 25 to 35 bushels per acre. I then seed down with clover and timothy, use it after as meadow or pasture, till its turn in rotation, usually from two to three years; then take it up as above described.

Oats, three bushels per acre, drilled after corn as soon as possible, in good order; harvest when fully ripe, with reaping machine, bind, shock same as wheat; product about 75 bushels per acre.

Potatoes: One potatoe in each hill, split; plant as early as possible, harvest when fully ripe; usually plant but one acre in cornfield; use no manure, hoe once; product light, owing to the prevalent disease.

Carrots: Sow thick in drills eighteen inches apart, plow ground, manure high with rotted manure, sow the first of June, hoe as soon as up, continue to hoe and thin out till the weeds cease to trouble; product from 600 to 800 bushels per acre. I cultivate all vegetables usually grown in gardens. There are no insects of any account that trouble me, except (the weevil) or midge in wheat. All the remedy I have is to sow *early*, and sow *early varieties*.

I cannot give any estimate of the value of fertilizing matter taken from the soil by an acre of wheat.

15. Answer to No. 15 is same as No. 10 of manure.

16. As I apply my manure for corn, and plow eight inches, the manure is covered from four to eight inches. I look at the difference between manures applied on surface, and those plowed in as follows: Manures spread on surface give immediate benefit to plants, but of a short duration; those plowed in also give benefit more gradually, and a longer duration; but it seems to be the only way to apply it to a permanent meadow is a top dressing.

17. My potatoes are affected with the common disease, called the rot. I have not been able to find a remedy. They are less

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affected to plant early, use no manure, dig early as soon as ripe, keep them cool.

Grass Lands, &c.

18. I use clover and timothy; sow six quarts of clover and four of timothy per acre; sow it in the fall, during September, on wheat; sow it broadcast. As I have no knowledge of dairy business I cannot decide which of the grasses would be most applicable. I should think that timothy and clover would be.

19. I mow twelve acres; the average product is from 1½ to 2 tons per acre. I cut my clover when most of the heads begin to turn brown; timothy just as the blows begin to fall. My mode of making hay is, I cut with a mowing machine in the forenoon, rake and cock in the afternoon in case the day be fine, if not, as soon as it has had three hours sun, cock, and let it lie twenty-four hours in good weather; break it out a few hours, cock again, draw next fine day; if heavy, break it out again before drawing. I never get it in green and damp as some people recommend.

20. There is none of my mowing lands unsuitable for the plow.

21. I have not practiced irrigation.

22. I have not reclaimed any low bog or peat lands.

23. I have succeeded in eradicating most of the weeds from my farm, so that I have control of them. The weeds most troublesome are the red root, the Canada thistle, burdock, narrow dock, tory burr, black cockle, acker's clover and white daisy. My mode is to cut or pull before their seeds mature.

Domestic Animals.

24. I keep two yoke of oxen, four cows, from six to eight head of young cattle and two horses. My cattle are a cross with the native and Durham. My horses are what we call here of the Messenger breed, they are of my own raising.

25. I have not made any experiments to show the relative value of different breeds of cattle.

26. I consider the best and cheapest mode of wintering my cattle is to stable them at nights, and feed moderately of stalks or

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hay, with a small allowance of roots, and give them fresh straw to pick at during the day, with open shedding to add to their comfort, and plenty of good water in the yard.

27. As I make no more butter and cheese than is used in my family I never have made any account of it as to the amount. My mode of making butter is to keep vessels clean, churn often, salt with best of salt. I make but very little cheese.

28. I keep 50 sheep, they are a cross of common breeds with the French Merino; they average from three to four lbs. of wool per head; the average price per lb. is 40 cents. My average of lambs is 40 as I keep mostly ewes; raise about 35 sheep; sell to butchers at from $2 to $3 per head; lambs from ten to twelve shillings.

29. I consider the best and cheapest mode of wintering sheep is to feed with good hay, and a small allowance of roots per day, with water and shelter; my average of loss is not one per year. I sometimes lose one from ill health, cause not known. I consider the coarse wooled more hardy than fine wooled for wintering.

30. I winter six head of swine, they are a cross of Leicesters with Berkshire; feed them as store hogs till the 15th of September, then shut them up; commence to feed with boiled pumpkins, small potatoes and refuse apples, add ground grain or shorts while hot, till my supply is exhausted, then feed with what is called the pig corn. If I feed with sound corn I grind it, as it is decidedly the most profitable. About the 15th of December, when they are usually about 15 months' old, they are killed; average weight 300 lbs. when dressed.

32. I have not made any exact experiments to show the relative value of potatoes, turnips, &c., compared with corn or other grain for feeding animals, either for fattening or for milk, but use various roots for the purpose, and consider them all good according to their value.

FRUIT.

32. My apple trees number about 144, they are set in twelve rows, twelve in a row; they are newly grafted, with all the leading varieties, chiefly of winter fruit.

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33. My number of fruit trees, exclusive of apple, is about 100, of which are 50 of peach; the best varieties are the Crawford's early, Old Mixon, Golden Rareripe, White Imperial, Sargent's Rareripe, with various other kinds. No. of plums 10, best varieties Bolmar's, Yellow egg, Sugar and Damsons. No. of cherries, 18; best varieties are the Yellow Spanish, White Tartarian, Transparent Eugene, Elkhorn, Black Eagle, May Duke, Black Tartarian, together with the common red. No. of pears, 24; best varieties, Virgalieu, Bartlett, the Bell pear, Harvest. No. of quinces 4, of the orange varieties.

34. The caterpillars have attacked my trees. I use no method to prevent their attack, save to destroy their nests as soon as perceivable.

35. The management of my fruit trees is to plant the ground with hoed crops while young, when they have attained a proper size I seed down a short time, apply manure about them, break up the soil, as circumstances dictate, using saw and knife for pruning, which is usually done in the spring.

36. Several experiments of farm operations have produced interesting results. I have been on my farm ten years, it was a gift from my father when I became 21 years of age, making my age at present about 32. During my short experience I have brought nearly all my farm under the plow for the first time, it being at the time it was presented to me in its natural state, with the exception of the timber, which had been cut off for wood, &c., leaving most of the large overgrown trees, together with refuse logs and stumps, which have been all cleared off. The greater portion of it has been drained, with under drains, making it sufficiently smooth for the working of mower and reaper, and all other improved implements in common use. My farm was also very stony, which have been thrown into walls and buildings. I have grown all kinds of grain from a handful of seed to hundreds of bushels, improving their quality and time of maturing.

I have improved white Soule's wheat, starting it from a handful, saving the first ripening for seed; I have shortened the time of maturing from six to eight days, which enables it to escape the

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(weevil,) midge, with our early varieties; I have also made like experiments, with like results, with oats, barley and corn. My grains and roots that I am cultivating at present were all trained up in the same way. I think it highly essential that seeds of all kinds should be saved from the first ripening and largest ears. In fact all of my farm operations are a matter of experiment, from year to year, such as the result of manures, tillage of soil in different ways, also various kinds of produce, in order to choose the best for cultivation, also the result of draining, with others too numerous to mention. The time of maturing of several kinds of my grain is as follows: wheat, ten months, varying from three to six days; barley, about sixty-nine days; oats, eighty days; corn, ninety days; potatoes, fit for use, in seventy days. The seasons will vary their time of maturing from three to six days.

FENCES, BUILDINGS, &c.

The number of my buildings is five; dwelling is constructed of cobble and cut stone, built in 1852; size of upright or body, 40x27; well elevated on a cut stone underpinning; height from water table, 14 feet; cornice heavy and plain; piazza in front; wing in rear, used as a kitchen and wood-house, 25x18; height same as body; also, stoop to kitchen, 6x9, over cistern; cellar under body, with flagged bottom; the thickness of cellar wall to water table is 2 feet; thickness above, 16 inches. Amount of rooms below are: Parlor, 15x16; hall, 7x16; sitting room, 15x16; kitchen and dining room, 16x17; with two bedrooms and pantry. The rooms above are lodging rooms and clothes presses. The entire cost of dwelling, finished below with butternut, oiled and varnished. blinds and all things complete, was $2,000.

The size of my barn is 35x50, with 18 feet posts; sidings are dressed and put on up and down, painted with oil and red venitian; cornice and frieze trimmed with white, with shingled roof; elevated on wall ten feet high and two feet thick. I use the basement for stables, wagon house and root cellar; feed hay direct from mows into mangers in stables. I found a spring, in digging my cellar, from which I carry water into my barn yards with logs, raise it into troughs, which I think is one secret in making manure, instead of driving to a distant watering place. The upper part, or

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body of barn, I use principally as a grain barn. I usually cut my hay before harvest, stow it in bottom of mows, to come out last. My floor is 14x35, dividing the barn in the center, leaves for bays 18x35, excepting 15x18, finished off for grainery, lined with brick, plastered on sides and overhead, making it rat proof. My grain for market is loaded through a door in the floor into wagon house, saving the necessity of shouldering bags, as is usually done in loading. Adjoining barn, on the north end, is my tool room and shop, and corn crib; size of building, 20x30; posts, 16 feet, done off same as barn, admitting a good hay loft, which has communication with my stables; also an open shed, 18x50, running east from barn, finished same as barn. The cost of barn, tool house and shed, was $650; built in 1847. My carriage house is 24x26, altered from an old dwelling. My buildings are of my own construction.

38. The construction of my fences is of common boards, ordinary rail fence, and half stone wall, with posts and boards walling in the lower board, to support fence, using three boards; size of wall, 2½ feet thick at bottom; height about 2 feet, as I am governed by top of fence, which is about 4 feet in height. I have in all, besides my yards about my house, 877 rods of fence, of which 100 is stone wall and boards and posts, about 100 of common board fence, 675 of rail fence. The cost of each kind is as follows: the stone and board is $1 per rod, besides drawing stone, which I count nothing, as it removes them from the fields; the board fence, $1 per rod, got up plain; cost of rail fence, 50 cents per rod, and to stake it 25 cents more, leaving the entire cost 75 cents per rod. They are in good condition, with the exception of some of the rail fence, which is in a state of decay, as my rail timber is chiefly of bass wood and white ash. I have not constructed any wire fence, but have laid plans for 100 rods on experiment.

39. The extent of my farming operations, as to weighing and measuring, is: Produce that I sell is weighed; that which I retain for my own use is measured. They are not registered by daily accounts, but at the closing up of each kind after selling.

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40. I keep a regular farm account, together with a memorandum of farm matters. I can state the annual expense of improving my farm, and the income from it, and at the end of the year can strike a balance of the debt and credit. I think the practice conducive very much to close observation, careful farming, and in the end would much improve our system, as well as better our fortunes.

41. Below I give the annual receipts and expenditures of my farm, pertaining expressly to the farm. You will see, by examination, that it does not intermingle with my family expenses, &c. I stand as an agent dealing with the farm. My farm expenses for hand labor is some more than is explained in the account, as it comes in by the way of change of works of improved implements with neighboring farmers, and as I have charged the use of those implements to farm, their use belongs to farm.

FARM EXPENSES OF 1854.

Self, for work, 9 months, including board, at $30,...	$270 00
Paid boy for work, 8 months, at $16, with board,....	128 00
Five days work in harvest, at 12s.,.....	7 50
Six days pitching manure, at 8s., ...	6 00
Extra hands thrashing, besides those with machine,..	5 50
One day cutting corn, 8s; paid for spreading manure, 16s.,.....	3 00
Thrashing grain, machine and hands,.....	21 88
Board of machine hands and teams while thrashing,.	4 00
200 loads of manure, at 1s. 6d. per load,.....	37 50
100 rods of tile drain, at 25 cts.,.....	25 00
Two teams 7 mos., at $30 per month, including keep,	420 00
Ten per cent interest for use and wear and tear of implements, ...	92 50
New material for fence per year,.....	25 00
Paid county taxes,.....	14 00
Insurance on barn per year,.....	1 00
24 bushels of wheat, for seed, at 16s.,.....	48 00
30 do barley, do 10s.,.....	37 50
18 do oats, do 4s.,...	9 00

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Seed corn, 16s., seed potatoes, $6,.....	$8 00
Garden seeds, 16s., carrot seed, 4s.,.....	2 50
2 bush. clover seed, at $7, 1½ bush. timothy, at $3,..	18 50
Cleaning clover seed,.....	2 00
Expense of keeping barn painted per year,.....	5 00
	$1,181 38

RECEIPTS OF FARM FOR 1854.

200 bushels of wheat, at 16s. 6d.,.....	$412 00
360 do barley, 10s.,.....	450 00
240 do oats, 4s.,.....	120 00
18 tons of hay, at $10,.....	180 00
75 bushels of potatoes, at 6s.,.....	56 25
80 do carrots, at 15 cts.,.....	12 00
Value of garden produce,.....	25 00
480 bushels of corn, at 80 cts., ...	384 00
12 acres of corn stalks, at $3,.....	36 00
Straw stack from straw of grain raised,.....	25 00
Pasture of 12 head of cattle and 50 sheep,.....	68 00
do 1 span of horses, ...	10 00
Pasture for other people, ...	12 00
6 hogs run in pasture,.....	6 00
18 cords of wood from timber lot,..... ...	18 00
Rails from wood lot for repairs,.....	5 00
50 bushels of winter apples, at 3s.,.....	18 75
75 do fall do 2s.,.....	18 75
Made 4 barrels of cider, at 16s.,.....	8 00
Peaches, cherries, plums, currants, berries,.....	25 00
Poultry from farm,.....	25 00
3 bushels of clover seed, at $7,.....	21 00
Total receipts,.....	$1,935 75
Deduct expenses of farm,.....	1,181 38
Net profit of farm,.....	$754 37

Being $8.87½ per acre for the improved land, after paying expenses of working it. My farm will rent for $500 per year,

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which leaves only $354.37 in favor of working it myself, say nothing of its improvements, which would come to a stand still if I were to rent it, and have a tendency to impoverish it.

In the preceding account I have charged for my own services, also services of my teams and their keep, also for manure. I have not given any account of the growth of stock, wool, or for pork, all which are made from produce for which I have given credit, with a gain or profit to myself—which leaves a balance in my hands, after deducting expenses or out goes on my farm, of about $2,000, if produce were all sold, but as a good portion is retained for family use and family expenses, it leaves me with from $800 to $1,000 for private use or improvements. I have endeavored to answer the questions proposed by the Society, according to the best of my ability, and I hope the committee will, in examining this report, make such comments as they may think will lead us farmers to a more thorough and scientific course of farming.

All of which is respectfully submitted, by a working farmer more than a practical writer.

WM. P. OTTLEY.

Phelps, Ontario county, Jan. 8, 1855.

Ontario County, ss: Wm. P. Ottley, being duly sworn, says that the farm statement submitted by him to the New-York State Agricultural Society, is true, to the best of his knowledge and belief.

WM. P. OTTLEY.

Subscribed and sworn before me, this 22d day of Jan., 1855,

LYSANDER REDFIELD, *Justice of the Peace.*

STATEMENT A.

No. 5. I have made experiments to test the difference in a succeeding crop, between shallow, common or deep plowing, as follows: Having a wheat stubble, a field containing twelve acres, which I was plowing for corn at a shallow or common depth, say five or six inches, a neighbor who had purchased a subsoil plow wished me to try it. I consented to do so. I was plowing about

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that time midway of the field. I used it one day, running it about ten inches deep on experiment. The remainder of the field was finished in the common way of plowing. The field was all planted in one day to corn, the deep plowing staked out by itself. By observation I found that the corn on the deep plowing did not come up as soon as that on the shallow, with a difference of from one to two days. I also found that the corn did not grow as fast during hoeing; but when the warm, dry weather of July and August came on, the leaves of corn on the shallow plowing rolled up, while those on the deep remained nearly unchanged in that respect, and continued to grow vigorously and more than gained its equal with the other. It had a marked difference while cutting it up, as it gave larger shocks. There was also a great difference in the yield of corn in favor of the deep plowing. I did not ascertain the difference, as it was my intention to have done, on account of my men not knowing my wishes on the day that portion of the corn was drawn to crib. I think there was a difference of about one fourth in favor of the deep plowing. The above experiment was in 1851. In very dry seasons I think there is a difference of one half in favor of deep plowing, which has been very easy to decide for the years 1853 and 1854, which were remarkably dry and hot in this section. I also tried a like experiment with wheat. It was a fallow of twelve acres; three acres were plowed five or six inches deep, the remainder nine inches. The wheat on the shallow plowing did not stand the winter as well as that on the deep, nor did it attain the thickness nor height. There was also a marked difference in their product of about four bushels per acre. I have also noticed the difference in my neighbors' fields in favor of those plowing deep, while those plowing shallow have for their reward a light, thin, dried up crop. I find by conversing with people from different localities that deep plowing is not considered advisable, as they think the nature of their soil will not admit of it; but I think there is not much soil in western New-York but what can be improved by deep plowing, either directly or indirectly.

The above are answers to No. 5 of soils in W. P. Ottley's report on farm management.

To B. P. Johnson.

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G. W. Coffin's farm, Amenia, Dutchess county.

[Second premium, $30.]

SOILS, &c.

1. My farm is situated in the eastern part of Dutchess county, within two miles of the Amenia station on the New-York and Harlem Railroad, and in the northern part of the town of Amenia. It contains one hundred and eight acres, sixteen of which are woodland, two of waste land, and the remainder, ninety acres, improved.

2. The soil on about two-thirds of the farm is a limestone loam; on the other third it is what is generally called "black slate." Limestone rocks crop out occasionally on the former and slate on the latter. Subsoil varying from loam and clay to rather strong clay.

3. The best mode of improving the soil is to keep it stocked down to grass, taking care in pasturing not to allow too close feeding off, and such portions as have furnished the winter's stock of hay should receive a dressing of manure as soon after the hay has been removed as convenient. August is the best time. A thick mat of grass left on the land in autumn answers the double purpose of protecting it from the searching winds and biting frosts, and of forming a rich bed of manure, as well adapted to its growth as any that can be applied. Barn yard manure is an invaluable source of improvement. A complete and thorough "*breaking down*" of the soil when preparing it for crops, especially for seeding to grass. Seeding with a bountiful supply of timothy and clover. The sooner a good sward covers the soil, the better. I have no clay, sandy or gravelly soils.

4. Plow from four to six inches deep for corn, generally varying more or less according to the depth of soil. For oats, put the plow down from seven to nine inches on the lightest soils, gradually increasing the depth each time. On an old field adjoining

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a piece of new land the fence had been removed, and on plowing it for the first time I found the old land, where it had been frequently plowed, mellow to a certain depth, and then so hard that the plow would skim along without penetrating it, while the new land was mellow to twice or thrice its depth. A strong team broke up the hard earth, with marked benefit to after crops.

5. Have never made accurate experiments with shallow, common or deep plowing, as to the effect in pounds or bushels on succeeding crops.

6. I have used the subsoil plow on a portion of several lots of different soils, and for different kinds of grain; subsoiled one land of about sixty feet in width, green sward, slaty on one end, and limestone soil on the other; left lands each side without subsoiling, planted to corn; all treated alike otherwise, and no perceptible difference in the yield or growth at any time; next year followed with oats; no perceptible difference in this crop.

In another field, soil, limestone, loam and clay; subsoil of an adhesive character; land in corn the year before; subsoiled one land working to the depth of eighteen inches, and sowed to oats the whole field; stuck stakes and visited the ground often, but could never see a shade of difference in the color of the growing grain, nor in the quantity produced, the stakes were all that marked the boundaries; same field sowed to wheat in the following fall, all plowed alike, showed no evidence of different treatment.

In a field on another part of the farm less loam and more clay in the soil; used the subsoil plow to about the same depth on one land only; sowed the whole lot to oats, and could see soon after they came up that on the land sub-soiled they looked yellow and sickly for the first two weeks, but then began to improve, keeping on until they presented the same appearance as the rest of the lot; no one being able to perceive any difference up to the time of harvesting. On gathering, the difference was so apparent that one could have almost told with his eyes shut as soon as he came to this land. Although there was about the same growth of straw as on other portions, yet the bundles were much heavier

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and heads better filled. The amount produced by subsoiling must have been as much as eight bushels to the acre more than where the common plow was used only. No perceptible difference in the grass this last summer.

7. The trees indigenous to my soil are the maple, walnut, chestnut, butternut, all of the different varieties of oak, the elm and ash. Shrubs are elder, sumac, black berry, whortle berry and May apple. Plants are adders tongue, red root, princes pine, wintergreen, columbine, mullein, thistle, sorrel, wood grass, and white clover.

MANURES.

8. Thirty loads of thirty bushels each are usually applied to the acre. If it is not carted out for the corn crop in the spring it is gathered into a large pile in such shape and thickness as to catch and retain the rain as it falls. All that will make manure and is good for nothing else, finds its way into the common pile. Have a cow stable with cellar beneath of sufficient capacity to hold all that is made from six cows during the foddering season. It has an open plank floor so that the liquid passes freely through and mingles with the solids which have been thrown through traps left at convenient distances apart. Bed or litter, with straw, leaves, or corn stalks, after the cows have picked and eaten such portions as they choose. Manure made in this way is worth twice as much as yard manure made from the same materials. The earth was removed from beneath my horse stalls, and was found to be of the richest character. An annual supply of muck in its place increases the amount of good manure in a cheap and easy manner.

9. My means of making manure are derived from horses, cattle, sheep, pigs and poultry, their excrements being mixed with straw, stalks, leaves, muck, plaster, ashes, soot and anything that will increase the amount without adding too much to the expense. The contents of a cesspool and privy sink, mingled with muck, form a strong and good manure for grape vines. In this manner I make a hundred cart loads of thirty bushels each, all of which is applied.

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10. That used for the corn crop is applied on the sod, if in a coarse state and plowed under. If thoroughly rotted it is sometimes applied in the hill, but I do not like the plan. I prefer one part wood ashes, two parts plaster, four parts hen manure, and twelve parts of muck, thoroughly mixed one week before using, and half a handful *on* the corn in each hill. An application of this kind increased the yield on one acre 1,560 lbs. by actual weight in the wet summer of 1853, and a like application during the dry summer of the present year did not add one pound to the yield, by actual weight. For all crops except roots I prefer fine manure *on* or *near* the surface. The best time to apply it to grass lands, as before stated, is in August or September.

11. Having but little muck I know not how to increase the amount of manure made annually at a cheap or economical rate. Gathering leaves from woodlands is an *objectionable method* of increasing the size of the manure heap. I tried it one winter and was convinced that to take the thick covering from off the roots of the living trees was *injurious to their growth and health.*

12. I have used lime, plaster, guano, salt, ashes, superphosphate of lime and sobt, and am now making arrangements to experiment with a substance found in great abundance near here, and which on trial by the side of plaster has produced a more vigorous growth of corn. Lime has been used with plaster and ashes as a top dressing for corn with good effect, but should not be applied while the corn is wet, as it kills the leaves wherever it adheres to them. A handful of the same mixture used in the hill when planting potatoes had a good effect, producing larger and better tubers. I once tried some lime on a patch of sorrel, staking the place that I might observe its effects, but was never gratified with discovering any. In all the above instances air slaked lime was used. An experiment upon a small scale was instituted with guano, manufactured super phosphate of lime, plaster and ashes, soil, tenacious lime-stone loam, old sod of red top, June grass and white clover—produced 2,000 lbs. of hay per acre naturally. Guano applied at the rate of 400 lbs. per acre, as top dressing, increased the amount to ..... 4,080 lbs.

Superphosphate, 400 lbs. per acre,	.....	3,040
Plaster, 800 "	.....	2,480
Ashes, unleached, 26½ bushels "	.....	3,840

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Taking the above experiment as a basis of action the increase over the natural yield would not warrant the application of either of these fertilizers except the ashes. The expense of each application being as follows:

400 lbs. Peruvian guano,.....	$10 00
400 lbs. superphosphate, ...	10 00
800 lbs. plaster,.....	2 60
26½ bushels of ashes, at 1s.,.....	3 31

The average cost of a ton of hay secured in barn or stack by the ordinary mode of producing and gathering is $5. The cost of each additional ton to the natural yield would be,

Of that produced by guano,.....		$9 60
"	superphosphate,.....	19 22
"	plaster,.....	10 83
"	ashes,.....	3 60

I have long been of the opinion that plaster would yield better returns when applied to new lands or to old land newly seeded than upon old sod. Ashes are like the poor man's opinion of roast turkey, "always good." *Guano* and *superphosphate cost too much* to use on lands of medium fertility, or that are yielding fair crops. But on worn out lands the case may be entirely different. A tablespoonful of guano used in the hill for corn by mixing with the earth, which was dry, killed it. Same amount of superphosphate had no apparent effect. Plaster increased the growth greatly. Ashes were too strong and cauterized the sprouts.*

TILLAGE CROPS.

13. The number of acres tilled varies from fifteen to twenty-five. Usually about seven to corn, one to potatoes, half an acre to carrots or rutabagas; follow with oats next season. If a third crop is sown it follows the last, and is either wheat or rye; until last year had sowed no wheat since 1843. Its old enemies appeared in full force and "claimed it for their own." A descrip-

*To make this experiment complete it should be carefully followed out and ascertained for a term of years what effect the prepared manures had upon succeeding crops, as it may well be that in a few years the continued increase may be such as to render these applications profitable to the farmer, though when ascertained only by a single year, as in this case, the results are otherwise.—[J.]

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tion of them would be useless, I will only name them: *midge*, *joint worm* and *rust*. *Indian corn* is the most reliable crop, and though requiring a greater amount of labor, is still one that pays the producer a higher percentage than almost any other. Usually plow sod land that has lain from eight to ten, or even fifteen years. If the land is naturally dry turn the furrows flat; if heavy and inclined to be too moist, lap the furrows. Defer plowing till the last thing before planting, this gives the corn an equal chance with weeds and grass. Plow from four to six inches deep, harrow lengthwise of the furrows, mark with a drag three feet apart each way for medium sized varieties of corn, and farther apart one way for larger. Distribute from four to six grains *about* in the hill, and cover one inch deep. Plant about 10th of May, eight quarts to the acre. After trying various methods of preparing the seed by soaking and rolling in different substances, I have abandoned the whole, and plant as it comes from the cob. Prefer applying stimulants on the young plants as soon as they make their appearance. Use plaster and ashes, one part of the former to two of the latter mixed; a small handful applied to two hills. I have thrown the plow aside in cultivating, and use a steel tooth cultivator, twice in a row each way; have a man to follow with a hoe, to set up the injured corn, and attend to such weeds and grass as are in and near the hill. As soon as it attains to the height of about six inches, have all hills containing more than four spears thinned to that number. Apply plaster and ashes in about same quantity as at first, and by the time the corn is twelve to fifteen inches high it has received its last cultivation by horse power. In case of a wet July weeds start up some, but are taken out, either with the hoe or by hand. The sod lies as it was turned in the spring, its inverted surface having been moved for a few inches deep only. I have tried experiments in harvesting, and find that the most grain is obtained by cutting at the ground and stouting (or stooking) if it is done at the right time. A little observation will direct when that is, corn becomes glazed, husks turn white, and the leaves die along the edges, usually from 10th to 20th September. Put 25 hills in a stout, and on husking make two bundles of each. Secure the stalks as soon as possible after husking.

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After six years' careful experiment with a view to ascertaining the relative value of seed from different portions of the ear, I am compelled, against all former notions, *to yield the palm to that from the small end.* On different soils, with like treatment, it has out yielded that from other portions of the ear in *every instance* where care was taken to select those ears that were well rounded over at the little end, the increase reaching as high in some instances as at the rate of 1,000 lbs. of ears per acre. Five times out of six the *larger ends* have yielded more than the middle. In the fall of 1853 measured one acre from a field containing eight acres of corn, and entered same for premium. I give the statement made at the time, so far as debtor and creditor are concerned:

Interest on assessor's valuation, taxes, seed, manure and labor,.....	$22 50
Yield in corn, 71 bushels and 33 lbs., sold at 75 cents per bushel,.....	$53 70
5,808 lbs. of stalks, worth.....	11 61
	$65 31
	22 50
Leaving a clear profit of.....	$42 81

I give below an account kept with a ten acre field in 1852:

Extract from farm book.

Dr.

1852. Spring lot of ten acres:		
May.	To ten days plowing at $2,.....	$20 00
	two days harrowing at $2,.....	4 00
	one day marking at $2,.....	2 00
	ten days planting at 7s.,.....	8 75
June.	To ashes and plaster,.....	3 75
	two days applying same,.....	1 50
	seed corn,.....	2 00
	plowing out, five days at $1.50,.....	7 50
	hoeing, 17½ days at 7s.,.....	15 31

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July.	To hoeing up weeds, seven days at 7s.,.... ...	6 13
Sept.	To fifteen days cutting up at 7s.,..	13 12
Oct. to 10th Nov.	To husking, thirty-three days at 7s.,.	28 88
	To use of team in drawing stalks,.....	4 00
	two men, two days at 7s.,.....	3 50
	drawing corn,.....	5 00
	drawing pumpkins, two days,.....	4 00
	sorting and cribbing corn,.....	3 50
		$132 94

Cr.

Oct and Nov.	By 33 cartloads of corn or 1,000 bushels ears, at 30 cents per bushel,.....	$300 00
	3,850 bundles of stalks at 3 cents,....	115 00
	21 cartloads of pumpkins at $1,.....	21 00
		$436 00
		132 94
	Clear profit,.....	$303 06

The enemies to the corn plant here are cut worm, red headed grub, and a kind of bug resembling the curculio, only larger, which retards the growth of the young plant by eating into the sides of it near the ground; the sap being checked, new shoots or suckers start from below the wound and make the hill too thick. Make a practice of sowing from one to two acres of corn for fodder, which is used to good advantage when pastures become dry in August or September. Sow by turning over green sward from 1st of June to 10th of July, at intervals of two weeks. Make broad furrows, three feet apart on the surface, and scatter from 50 to 60 grains to the foot; cover by passing the harrow once across the furrows. Four times as much cured fodder can be produced in this way as is generally taken from the same amount of ground in hay. Raise a fair crop of carrots by turning a piece of rich greensward flat, and planting in drills about 18 inches apart. Plant by the 1st of June. By this method from four to five hundred bushels may be grown in an ordinary season, and with but little annoyance from weeds. Harvest last of

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October. Rutabagas have failed for the last few years, in consequence of a rot similar to that of potatoes. Do not know of any preventive. Oats follow the above crops. Three bushels of seed to the acre, as soon as the ground will do to work, April 15th to 25th. Yield about 50 bushels per acre on an average. Apply no manure to this crop; it grows too large generally, and by lodging adds greatly to the labor and expense of harvesting. An application of guano at the rate of 200 lbs to the acre advanced their ripening about six days. Same amount of super-phosphate had no apparent effect. Wheat and rye and buckwheat have not been raised by me sufficiently to be the subjects of experiment. When I did raise wheat, some twelve years since, I sowed after oats, plowing the stubble twice before sowing. Sowed from 5th to 15th September, two bushels Canada flint to the acre. Harvest about 15th of July. Average about twenty bushels per acre. The enemies before spoken of soon put an end to this branch of business here.

15. This question has been partly answered in No. 10. For corn I prefer long manure, plowed under from four to six inches deep on moist soils; rotten manure spread on the plowed ground and harrowed in, especially on light dry soils. The latter is also prefered for wheat.

16. The difference between manures placed on the surface and harrowed in, and manures plowed in, is generally in favor of the former method, as the young plants find it at a time when they need it most. After having received aid in their first stages of growth they are better prepared with numerous extended roots to derive nourishment from a soil not over rich than if they had only half the extent of roots. When it is plowed under deep in a soil of only ordinary fertility, the coldest of the soil having been brought to the surface, presents an appearance anything but promising for a tender seed to vegetate in. If it grows at all, it will present a sickly appearance for the first month or two, and when its roots at last reach the manure it is often too late for a good growth.

17. My potatoes have been affected with the same disease that has pervaded the whole country. Mine have not been affected

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to so great an extent as the crops of my neighbors. I attribute it to planting on corn stubble, where there was no rapid fermentation. They do not grow as large, but are much more sound.

The past summer I made different applications to three rows. Ten hills weighed as follows:

On No. 1,	nothing put,	.....	13 lbs.
" 2,	handfull of fresh ashes,	.....	6½ "
" 3,	" compost hen manure,	.....	19½ "
" 4,	" plaster,	.....	19½ "

Applied the substances in the hill at the time of planting; the ashes proving too strong, but each of the others increased the yield at the rate of about 50 bushels per acre.

Grass Lands.

18. In seeding to grass I have never used any other than red clover and timothy seeds. On winter grain I apply three quarts of timothy in the fall, at the time of sowing grain, to each acre. In the spring, as soon as the earth becomes free from the winter's snow, I apply three quarts more of timothy, and from four to six of red clover seed. The best kinds of grass for dairy purposes are such as I have already described as coming in natural, white clover, wood grass and red top, to which may be added blue grass.

The old English "cock's foot" or "orchard" grass had been sown on one lot by the gentleman of whom I purchased, but it grew too much in tussocks, and there being so much open space between, the natural grasses, with the aid of timothy, ran it out; there is now and then a spear left, only.

19. I mow generally from 20 to 25 acres for hay. Average product, a ton and a half to the acre. Cut clover when about half the heads begin to change to brown, and timothy when in blossom. "Chess grass," or "June grass," is fast taking the place of timothy in my old meadows, and, ripening with clover, requires earlier cutting than we are generally prepared to give it, but it makes good hay. Cure mostly in cock. Seldom leave hay spread out for the dew to fall on, even though cut in the middle of the afternoon. In good weather shake the cocks out at 11

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o'clock, and by 2 o'clock begin to draw them to the barn or stack. I prefer that it should mold from its own moisture, than that it should be sun-burnt. Allow the dew and water, if any, to dry out, and then it will cure faster and better in small cocks than any other way. If it is a little too heavy and green when put in the mow, a layer of straw is shaken on the top of each load, after it has been distributed about the mow evenly. For cattle and sheep, it is desirable that it should heat enough to turn of a reddish brown color. For horses it should not be allowed to heat.

20. I have no mowing ground but what can be plowed at pleasure.

IRRIGATION.

21. There is a never-failing stream of hard water running through the middle of my farm, from north to south, a distance of one hundred and thirty rods, and in that distance falls sixty feet. It is taken from its entrance upon the farm, and conveyed in an open ditch along the sloping grounds that descend towards the natural stream, and turned out so as to spread over about five acres of meadow. These meadows are near the barn, and are stocked down in the fall and spring until they exhibit a prospect of no great yield of hay. The water is turned on generally the first week in April, and changed, from week to week, to different places until the fore part of June, when it is allowed to spread out upon a pasture lot. So enormous has the growth of grass become by the last of June, that we often cut the heaviest portions and secure them before the month is out. Three tons per acre have been cut from the watered portions, while that adjoining, without water or irrigation, would scarcely yield a ton, though the soil and grasses were of the same nature.

22. I have no bog or peat lands.

23. Canada thistle, snap dragon, or "toad flax," wild carrot, common thistle, mullein, and weeds of less note annoy me. I destroy Canada thistles by pulling them frequently, cutting up with a hoe as often as they appear—where very thick, by plowing every two weeks during a whole season. *It will do it.*

No weed is to be feared by the farmer more than *snap dragon*, and yet if it is taken when the first few bunches appear on the

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farm, and treated to thorough applications of *salt*, following it up whenever any shows itself, the thing is done. I am master of it, and this has been the course pursued.

Wild carrots have been driven from every lot on my farm, by pulling, and sometimes cutting an inch below the surface with an old knife. The war lasted *fourteen years.*

It has continued the same length of time against common thistles and mulleins—but they hold up their heads yet. They have been regularly cut before blossoming twice every year, and in good seasons three times, and there is "a few more of the same sort left."

Sorrel is sometimes troublesome for a single season, and then disappears for a number of years. I know of no remedy except to get a good sward on the field as soon as possible.

The *daisy* is a source of annoyance to some, but I regard them in a friendly view. They are a sure indication of the absence of grass, and only take possession until grass can work its way in. Among the weeds a better substitute for grass cannot be found. Cut and cured before they are in full blossom, sheep and cattle make no difference between them, in moderate quantities, and hay. In the fall, after grasses are dried and withered by frosts, sheep seek and eagerly devour the daisy, and in the summer they will crop the blossoms with apparent delight.

DOMESTIC ANIMALS.

24. I have one pair of working oxen; one pair of fat oxen; six cows, all more or less crossed with Durham blood; two yearlings, a bull and heifer, full blood Ayrshire—each took a first premium at the State fair in New-York, in October last. I keep two horses.

25. I have made no experiments with different breeds, to show their relative value for particular purposes, but am preparing to do so.

26. The cheapest food for cattle is hay and corn stalks; the best manner of wintering is by keeping them in well ventilated

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stables, so confined as not to annoy one another, giving four to six hours freedom in a convenient enclosure during pleasant days. For all laboring teams chopped food is preferable; and an experiment to test the value of chopped hay, compared to the same quality uncut, resulted in favor of chopping by one quarter. A great saving is made by chopping and steaming corn stalks.

Water should be accessible at all times, or at least twice each day. I am of opinion that the exercise occasioned by a journey of fifteen or twenty rods for drink, is beneficial to the health of all kinds of farm stock. But the objection to this distance is that in unpleasant weather they will go to their stalls thirsty, rather than turn out in the storms and cold. It is better to have a good supply in the yard.

27. I keep but five cows. Their milk is used for family purposes, and butter is made by churning the cream only.

In the summer of 1852 an accurate account of the products of the above number of cows was kept, from the 15th of April to the 15th of November. The butter which was not used by the family was sold for 21 cents per pound. The number of pounds produced in this time (214 days) was 838½, which, at 21 cents, makes $176.08. The products of the same cows for the whole year were as follows:

Butter, as above,	$176 08
Five calves, sold at $5 each,	25 00
Two quarts of milk, for family use, per day, 214 days, at 2 cents,	12 84
Allowing each cow to produce 100 lbs. of pork from skim milk, sold at $8,	40 00
Three quarts of milk per day, for family, for 60 days, at 3 cents,	5 40
Milk sold in 60 days, at 3 cents per quart,	36 25
Fifty pounds of butter, made in winter, at 23 cents,	11 75
Amounting in all to	$307 32

Or $61.26 per cow.

During the grass season they had nothing but pasture; and after frosts began to appear they were fed pumpkins twice a day,

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until they had eaten twenty cart loads. Hay and corn stalks formed their winter food, except an old cow that furnished the family with milk and butter through the winter—she had four quarts of corn meal and buckwheat bran mixed, per day.

28. I have fifty sheep, thirty full blood South-downs and twenty Cotswolds; my Cotswolds yield 6 lbs. per fleece, and South-downs 3 lbs. 14 oz; sold wool altogether last year at 41 cts.—was offered 31¼ cts. this year. South-down wool is worth from 2 to 4 cts. per lb. more than long wool, generally.

I seldom have an ewe that does not produce one lamb certain, and sometimes three; I do not let them re-produce until two years old. South-downs are most productive, and best calculated to breed in large flocks, endure cold and storms better. I rear 45 per cent more lambs than I have old sheep; seldom lose one; have sold mostly for breeding; I sold one full blood South-down lamb that was 60 days old, to a butcher, for $5—no extra feed; sold eleven buck lambs for $90. Of the fifty on hand, thirty are expected to breed. Weathers bring from $8 to $12 per head at two years old, for market. Long-wooled bring more than South-downs for mutton, but it costs more to fatten them.

Feed hay twice a day, in box racks, and grain to each flock at noon; must keep condition up; it will not do to allow any stock to fall away in flesh. Do not allow bucks to run with the ewes after service is over. Each flock of breeding ewes has a yard for their exclusive use. Bucks are kept together and fed a small amount of grain; ewe lambs by themselves, having shelter under the barn, and open yard to resort to at pleasure. I have shelter for all.

I used to feed rutabagas to breeding ewes once a day, beginning in March and continuing to grass—but the failure in that crop has caused me to resort to potatoes, "small ones," of course. Shelter is indispensable to good and cheap wintering, so also is a good supply of wholesome water; hay, of different qualities, forms the cheapest general food, all things considered; but a mixed diet of hay, roots or apples, and grain, is undoubtedly the best for them in point of health and profit to the owner. I lost

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some of the most valuable of each kind last spring, after the heavy storms of that period. Long-wooled died with "liver rot," and South-down with inflammation of brain, induced by taking a severe cold. I do not average more than 3 per cent loss annually of old sheep, nor more than 5 per cent of lambs. I never kept fine wooled sheep, to make a business of it.

30. I keep two breeding sows—cross between the mixed bloods of the country and Suffolk. My orchards are convenient, and from the time apples as large as a hickory nut begin to fall, they and their pigs are confined in them, and thrive on them and the dairy and kitchen slops, until about eight weeks old, when the old ones are separated from the pigs. As soon as husking is commenced they receive the nubbins, and are finally fattened on apples, pumpkins and potatoes, boiled together, and meal mixed in, also a feeding of corn in the ear once a day; killed at six and eight months; average weight, from 150 to 225 pounds, when dressed.

31. Have made no experiments with sufficient accuracy to report on the value of different articles of food for producing milk or for fattening animals.

FRUIT.

32. Have 212 apple trees in bearing, and 100 newly set. About 100 are not yet grafted, some are too old to graft, and others were taken from fruit yard and set without grafting; the object being to ascertain the flavor of the natural fruit. I have some experience in grafting, and have a tree that shows the influence of the *stock* upon the *scion* in a manner so marked that any one can become convinced on tasting the fruit. Thus, if I wish to increase the acidity of an apple it is grafted on a stock that produces sour fruit, and vice versa. Among the grafted fruit (of which I have sixty varieties) I prefer the following: Early Bough, Jersey Sweeting, Tallman and Golden and Ladies' Sweeting, Early Harvest, Early Strawberry, Boston pippin, Spitzenburgh, Rhode Island Greening, Northern Spy, Baldwin, Roxbury Russett and Newtown pippin, the last growing fair occasionally, only.

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33. I have twenty standard and twenty dwarf pear trees; the standard trees are not all grafted. Among the varieties I have Bartlet, Louise bonne De Jersey, Seckel and Virgalieu, and others of the most approved varieties. Eighteen plum trees, Green Gage, Purple Gage, Bolmars Washington and others. Of peach trees I have 50. They are of the best varieties so far as they have fruited. I have sixty cherry trees, Black Tartarian, White Tartarian, Carnation, Corone, May Duke, and other varieties. Some are just coming into bearing.

34. Apple trees are now suffering with black canker; pear trees with blight; plum trees, or rather the fruit of it is much destroyed, and all damaged by the curculio; peach trees are growing sickly again. The excessive wet of last spring has destroyed some of my most valuable trees. The cherry suffers immensely from the curculio. For canker, blight, and knots on plums, I cut the affected branches off and burn them. On small trees I follow the plan of catching the curculio on sheets by jarring the tree suddenly. On larger ones I have to submit, though not without a *murmur*.

35. My general management is to keep the grass from growing about the bodies of all kinds of fruit trees, and to apply such kinds of manure as is best adapted to their growth; train the heads right while young, and save the necessity of the ruinous practice of cutting off large limbs when old. The young orchard of a hundred trees was planted out by turning back furrows, 30 feet apart one way, and crossed the other at a distance of 25 feet; this raised the soil just where I wished to set each tree. I planted peach trees between the broader rows, and they will finish their course before forming any impediment to the apple trees. Of the smaller fruits, I have grapes, Catawba and Isabella; currants red, white and black; goosberries, three varieties; a few rods of strawberry plants, and am preparing to furnish Antwerp raspberries for the New-York market. I set two canes in a hill, hills four feet apart each way; have enough to set one acre in this way.

36. Tried one experiment to test the growth of corn with and without suckering. Planted ten hills square in the middle of a

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potato patch as near as possible alike, and when the suckers first began to appear cut them off of alternate rows, leaving the others to grow. They soon grew out and were cut again; the third time cutting finished the growth. At the usual time husked and weighed the corn.

50 hills left to grow without suckering,..... 47¾
" suckers taken off,..... 47½

The Dutchess County Agricultural Society awarded me a premium for a hill of corn of the Stowell evergreen variety, grown from a *single grain*, with *seven stalks*, numbering *seventeen ears*, and *sets for ears*. This was "terra cultured."

Three years ago I raised from a single potato, weighing ¾ of a lb., cut into pieces, with a single eye on each—two pieces in a hill—a half bushel measure well heaped, weighing 30 lbs.

FENCES, BUILDINGS, &c.

I have two barns for hay and grain, one 26 by 36, with cow stalls across one end and cellar beneath, and horse stalls across the other end; contiguous to this, and opening directly into it, is a carriage house, 22 feet square—entrance to same through two sets of doors from back yard. The other barn stands nearly opposite the first named, and 60 feet from it, forming a yard between; is 28 by 40 feet, with stables across one end, and a deep bay for hay on the opposite end, beneath the thrashing floor is a place for sheep.

The barns stand east and west, and on the west side of the yard have a shed 40 feet long and 12 wide, to which has been added a lean-to of ten feet. In one end of main shed keep my fowls, the other portion is devoted to my breeding ewes, divided into two flocks by a box rack running the length of the shed. Two small buildings between the house and barn serve, one for corn house and the other for a granary. Wood house adjoins the house, and has ice house, or rather pit, beneath it, 7 by 11 feet, and 8 feet deep; holds 16 loads, and keeps till fall. Dwelling 26 by 35 feet main body, with wing 17 by 30 feet; erected in 1845.

Buildings all on the same side of the highway, and so arranged as to make as few steps in winter feeding and care as possible.

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38. I have one thousand and seventy rods of fence, nine hundred rods of stone wall, and one hundred and seventy of rail fence. The wall is two feet and three inches wide at the bottom, and rises to the height of four feet, being one foot wide on the top; is generally staked and ridered. My rail fence is made by allowing the ends to cross each other obliquely, forming what is termed a "worm fence." The cost of constructing the former is about $1.50 per rod, while the latter costs only $1 per rod. Wall is considered cheapest and most efficient in restraining stock. Have never constructed any wire fence.

39. Weigh all my pork and beef, whether sold or used in my family. Have weighed all of the buck lambs sold. Weighed a Cotswold buck at time of shearing, 1st of June, 190 lbs; thirty-eight days afterwards he weighed 220 lbs.; gain 30 lbs. in thirty-eight days. Weigh corn in the ear, and bundles of stalks; have found that one pound of merchantable corn in the ear and one pound of stalks to each hill is more than one farmer in twenty produces on a whole field together. Have kept a journal for fifteen years, in which is entered an account of the weather and the employment of each day on the farm, time of sowing and harvesting, number of bundles of grain harvested, loads of hay secured, number of bundles of stalks, time of turning cattle to grass, time of beginning to fodder, &c. The average number of days that my cattle have been foddered each year for eleven years in succession is *one hundred and fifty-seven.* I thus know that if I feed each animal two bundles of stalks and twelve and a half pounds of hay per day, how far the amount of fodder on hand in the fall may be drawn upon for use. By pursuing this course I have never been compelled to buy a pound of hay or bundle of stalks, but have sold to accommodate neighbors less *lucky* than myself. It takes but a few minutes at night to place on record the chief points of each day's transactions, and the benefits arising from it are beyond my power to enumerate.

40. I keep regular debt and credit with my farm, commencing with an accurate inventory of all personal property used to carry on the business. Inventory on the 1st of April of each year; and I will venture the assertion that if more of our farmers would spend the day in a similar manner there would be less reason to apply to it the appellation of "All Fools' Day."

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41. The receipts and expenses of the year beginning on the 1st of April, 1853, and ending 1st of April, 1854, were as follows:

DR.

Groceries, beef and flour, during the year,	$119 17
Repairing farm implements,	87 50
Books and papers,	20 00
Postage and gate fee,	3 80
Hired men,	231 25
Hired women,	82 81
Miscellaneous, including clothing, travelling, &c.,	286 35
Stock bought,	243 78
Seed wheat,	10 25
Grass seeds,	26 88
State, school, and road taxes,	37 77
Doctor's bill,	26 00
Plaster, ashes, guano, &c.,	16 00
	$1,191 56

CR.

By 350 bushels of oats at 47¼ cents,	$165 38
140¾ bushels corn at 73 cents,	102 74
Beef cattle sold on foot, estimated at $9 per hundred, dressed weight,	187 44
5 calves at $7.13½ cents each	35 68
3 sheep at $9 each,	27 00
9 lambs at $7.53 each,	67 75
113½ lbs. wool at 41 cents per lb.,	46 53
282½ lbs. butter at 19¾ cents,	55 71
2,919 lbs. pork at a fraction less than 7 cents per lb.,	203 53
430 lbs. of turkeys at 11 1-10 cents,	47 70
382 lbs. chickens at 10 3-10 cents,	39 35
8 barrels of potatoes at 95¼ cents,	7 62
Sundries,	51 06
Excess of inventory over last year,	515 00
	$1,552 49
	1,191 56
In favor of farm,	$360 93

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42. The cost per cent of marketing the different articles of farm produce is as follows, as near as can be ascertained.

Hay and straw, from.....	15 to 20	per cent.
Corn, oats and rye, an average of.....	9	"
Potatoes and apples,.....	12½	"
Butter,..	6	"
Pork,.....	6	"
Poultry,.....	8	"
Small fruits, cherries, berries, &c.,.....	8	"

If the time spent in making these statements, imperfect as they are, which has been snatched at intervals within the past few weeks from a multiplicity of public and private duties, should be rewarded with favorable notice on your part, and deemed worthy of holding up as an example to stimulate others to similar efforts, then will I have the satisfaction of indulging a hope that it has not been spent in vain.

GEORGE W. COFFIN.

Sworn to and subscribed before me, this 21st day of *December*, 1854,

ROBERT GRANT, *Justice of the Peace.*

Wm. Johnson's Elmwood Farm, near Geneva, Ontario county.

The annexed account of his farm operations was furnished by Mr. Johnson, at our request, not as a competitor for the premium offered by the Society, but to exhibit a statement of the management of his farm, and the results of his operations. We doubt not it will prove a most interesting document, and worthy of a place among the papers of the Society, evincing, as it does, great care and judgment in the management of the farm, and a method and carefulness worthy of being followed by *many of our farmers.*

ELMWOOD FARM, NEAR GENEVA, *February* 28, 1855.

B. P. JOHNSON, ESQ.

My Dear Sir—On a previous occasion I intimated to you that I would send you an account of my farm operations. I have just

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balanced my farm books for the year 1854, and will give you a condensed statement therefrom.

My farm contains 100 acres, 16 acres woodland, about two acres of roads, two do yards, &c., attached to house and barn, and the balance is all tillable, and is divided into nine lots, averaging about nine acres each. The soil is a clay loam, with a clay subsoil, being pretty uniform throughout the whole farm. The lots are numbered from one upwards, including the whole. I keep an accurate account with each lot, charging it with the interest on the value of the land, and with all of the labor and material used in producing the crop, and give it credit for the value of the same, carrying the balance to the general farm account:

Lot No. 1. Eight acres this year was sown with barley, which produced by weight 284 bushels, sold for 8s.,...	$284 00
Total cost and expenses in raising the crop, including interest on the value of land,.....	102 20
Balance in favor of crop, ...	$181 80

Thus I find the cost of raising a bushel of barley last year to be about 3s.

Lot No. 2. Ten acres is next in order planted with corn on clover sod, which produced by measure 41 bushels per acre, 410 bushels, at 8s., is.....	$410 00
Estimated value of corn stalks, $6 per acre,.....	60 00
Total value of crop,.....	$470 00
Total amount of expense in raising crop, including interest on value of land,.....	153 26
Balance in favor of crop, ...	$316 74

Showing the cost of raising the corn to be about 3s.

Lot No. 3. Fallow.

Lot No. 5. Six acres to wheat, 21 bushels per acre, 14s. 6d. per bushel, ...	$228 38

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Estimated value of straw, $3 per acre,.....		18 00
Total value of crop,.....		$246 38
Total amount of expenses including interest on land,		122 40
Showing the cost of raising the wheat to be 97 cents per bushel; balance in favor of crop, ...		$123 98

Lot No. 6. Two acres in roots, 400 bushels, at 1s.,.....	$50 00	
Two acres in oats, 60 bushels, at 4s.,.....	30 00	
do in corn fodder, five tons per acre,.	50 00	
		$130 00
Expenses in raising above including interest on land,		43 60
Balance in favor of crop, ...		$86 40

Lot No. 9. Ten acres meadow (clover).		
Estimated at 13 tons, at $12,.....	$156 00	
Expenses in cutting and securing hay, and interest on land,.....	52 50	
Balance in favor of crop,.....		$103 50

Lot No. 9 continued. (Cloverseed.)		
Estimated No. of bushels 7, at $7 per bushel,	$49 00	
do of straw,.....	7 00	
		$56 00
Expenses of gathering and clearing seed, and interest on land,.....		27 00
Balance in favor of crop, ...		$29 00

Lots No. 4—8; 6—2; 7—10; 8—10.

In all 30 acres of pasture, on which was kept the following animals, to wit:

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10 cows, 28 weeks, at 2s. 6d.,	$87 50	
4 horses, do 3s.	42 00	
2 colts, do 2s.	14 00	
2 yearlings, do 1s.	7 00	
45 sheep, 32 weeks, at 2c.	31 50	
		$182 00
Interest on value of land and other expenses,		174 50
Balance in favor of land,		$7 50

Cows. Cr. Ten cows, average yield per cow, 210 lbs. butter, sold at 20c. per lb., 2,100 lbs., is,	$420 00	
I have ascertained by repeated experiments that the milk of each cow is worth about $10,	100 00	
Value of manure,	20 00	
		$540 00
Dr. Interest on value of cows, at $30 each, at 10 per cent,	$30 00	
Keep of cows 28 weeks, 2s. 6d.	87 00	
do 24 5s.	120 00	
Other expenses,	31 50	
		$268 50
Balance in favor of cows,		$271 50

Showing the cost of making a pound of butter to be 12½c.

Sheep. 45 sheep, weight of wool 202 lbs., at 42c.,	$84 80	
22 lambs raised 8s.,	22 00	
		$106 80
Expense of keeping, washing, shearing, &c.,	$77 50	
Interest on capital invested,	11 30	
		$88 80
Balance in favor of sheep,		$18 00

Swine. 5 swine killed at 9½ months old, weighing in the aggregate, 1,340 lbs., at $6 per 100,	$80 40

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Swine. Estimated value of milk,.....	$50 00	
Feed, 22 bushels corn, at 60c.,.....	13 20	
Other expenses,.....	3 50	
		$66 70
Balance in favor of swine,.....		$13 70

Showing that it costs 5 cents to make 1 lb. of pork.

RECAPITULATION.—GRAIN & HAY.

Balance in favor of Lot No. 1,.....	$181 80	
do 2,.....	316 74	
do 5,.....	123 98	
do 6,.....	86 40	
do 9,.....	161 50	
do pasture,.....	7 50	
Total grain crops, ...		$879 20
do milch cows,.....		271 50
do sheep, ...		18 00
do swine, ...		11 70
Estimated balance on favor of stock on farm,.....		95 00
Permanent improvement over and above actual cost during the year,.....		200 00
Value of fruit sold,.....		39 38
		$1,514 78
Dr. To interest on 20 acres not included above,.....	$98 00	
interest on tools on farm,.....	37 50	
taxes, ...	15 22	
labor not included above,.....	190 00	
bills paid for sundries,.....	75 40	
groceries for family,.....	77 10	
boards and tiles,..... ...	68 14	
		561 36
Showing a balance in favor of the farm,.....		$953 42

It will be seen that I have made no account of fruit used in the family, nor of the kitchen garden, house rent, fire wood, &c.;

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nor have I allowed interest on the value of the buildings, exclusive of land. With the above exceptions I believe the accounts are strictly correct, and that the items of expense are so correctly given that they show the real cost of producing the articles indicated. My crops in rotation are, first, corn, on which is applied all of the unfermented manure I can get. The next spring it is sown with barley, at the rate of 2½ bushels per acre, and sown with wheat in the fall, with a top dressing of fine manure, of about six loads to the acre. The following spring it is sown with eight quarts of cloverseed, four do timothy, one bushel of plaster to the acre, when it is allowed to remain three years. I generally get 55 bushels of corn, 30 do barley, 20 to 30 do wheat per acre. I keep one of Badger's horse powers and thrashers, with which I usually do my own thrashing, which is done in the winter with the *ordinary help on the farm.* The cattle are kept almost entirely on straw and cornstalks which are cut *fine*, and a sufficient quantity are put into a water-tight box, moistened, on which is put a little ground feed, and allowed to stand about 10 hours, when it is ready for use. The cattle are all stabled in the basement of the barn, and *are fed regularly three times morning and evening*, and are kept in the stable usually about 20 hours out of 24. I only feed hay to lambs, calves and young colts, except a small quantity which is fed to the cattle in the spring of the year, when they are first turned to grass, believing that coarse feed, when prepared as above, is *quite as good and much cheaper.* All of the manure is kept under cover, with which is mixed all of the leaves, muck and other material that can be gathered to increase the *pile.* I usually make from two to three hundred rods of underground drains, laid with tiles every year, and about 200 rods of board fence. There are other things I should like to dwell upon, but I fear that I have already written more than even *your* good nature will endure, and, therefore, I will stop, while I remain Yours, respectfully,

WM. JOHNSON.

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DRAINING.

The essay on draining by W. P. Ottley is plain and valuable. The experiment was on a small scale, and more valuable to ordinary *small* farmers, perhaps, on this account, who cannot follow magnificent examples. This is intelligently conducted, and is worthy of the second premium.—[COMMITTEE.]

Experiments in Draining, by Wm. P. Ottley, Phelps, Ontario county, 1854.

[Second premium, $15.]

As the premiums offered by the State Agricultural Society for experiments on underdraining are confined to the past year, it narrows me down to about 100 rods, about the amount laid down by me the year past. The field which I drained last year, 1853, was a fallow for wheat that was sown in fall of 1853, and the result and experiment, I think, should come under the past year's test or observation, as it was not evident till last spring. The field sown in wheat, that I have spoken of above, was a field of twelve acres, sloping to the east and slightly to the northeast. It has been under the plow for ten years. In the course of its cultivation I have sown it in wheat three times. It was evident from each crop—and it did not require very close observation—that draining was indispensable in order to grow good wheat on portions of the field. I resolved while harvesting the crop previous to the past one to drain it before sowing it with wheat again, as I was suffering a loss of time preparing it for wheat, and also of seed, together with a loss of crop. The field was capable of growing a medium crop of corn or barley before draining, but it seemed impossible to grow wheat or clover. The upper side, say three acres, does not need draining; it is situated higher, and the soil is of a gravelly nature; it holds wheat and clover, and never has failed of bringing a good crop. But the remainder of the field is of a gravelly

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loam, and possesses a good deal of vegetable mold. There are swells or small ridges running in various ways across the field, which caused the water to dam and rise to the surface. I found in digging a drain a great many bars of soil, so hard that it required a sharp pick to dig through them, which was one great cause of the necessity of draining. I set my stakes for drains before the wheat was harvested. I consider it a very good time to mark out drains; the deficiency of wheat readily tells what will cure it. Be sure to get them well on the upper side of the land to be drained, as there is very little good arises from the land above a drain where the land is steep; as the water comes with a rush, it does not give the drain much chance to draw it. My method of draining this field was with stone, commencing at the point where I wished the drains to discharge, running in gradually in order to effect a regular fall, till I attained two and a half feet deep and twelve inches wide on bottom, that being the size I dig for stone drains. Having plenty of cobbles on my farm for side stone, I procure flat limestone for covers from a quarry about three miles distant. I choose stone about five inches in size for side stone; use but one row of them, leaning the covers against them, which leaves a good throat, and is less liable to choke than where two rows of side stones are used, as they are apt to roll in by being washed. I then fill the drain up about one foot with small stones, throwing on a little straw to avoid loose dirt from falling in while filling. I have a side hill plow that I use for filling, which enables me to plow back and forth, not allowing the team to step into the drain until I have turned in two or three furrows.

The amount of drain in the above field is 200 rods, and by observation while the wheat was growing I think I shall put in about fifty rods more. The cost per rod was 40 cents, as follows: Paid for digging, 20 cents per rod; drawing and filling, 20 cents; making the cost of draining this field $80.

The result was that I had an even growth of wheat except where I intend to lay fifty rods more, as I stated above. We had a very wet fall and spring, which was a great injury, wheat being thin on the ground, but of No. 1 quality, as was readily decided by

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the judges on grain at our fair held at New-York last fall. By close observation during its growth, those localities which had previously been frozen out were a little behind the rest, on account of the soil not being fully naturalized to the growth of wheat, which it will be by a few years' working, as I have found to be the case previously. The increased value of the land, taking the field together, I estimate at $5 per acre, annually, better than before its being drained. It is a safe reckoning that draining will pay for itself, with interest of cost, in two crops.

The field that I laid the 100 rods in the past year is a field of twelve acres, sown with barley last spring, 1854. The situation of the portions drained previous to the commencement of the process was as follows, the field being rather level, with small ridges running through it, just enough to turn the water into courses about four rods wide. I have owned the field about ten years; while it lay in grass it gave a good return, but when in any other crop those wet portions gave little or none, as it was impossible to get in a crop in good order, and at the loss of preparation, seed, &c.

I resolved to drain it last spring, it being a corn stubble, and wishing to sow it in barley. The kind and condition of the soil was a mixture of gravel, loam, clay and muck. There are no springs, the water remaining in the courses in rather a sluggish state, as there was not much fall. The method pursued was with tiles, as follows: The drains were laid out in their appropriate places, and were dug from two to two and a half feet deep and four inches wide on the bottom. I procured 1,200 horse-shoe tile from Waterloo, and had some others on hand. They were distributed along the bank, together with small stones to chink around the tiles. I then commenced at the upper end to lay carefully, examining the bottom with a crum hoe, made for the purpose of finishing tile drains and cleaning out the bottoms, as it is essential that the bottom should be hard or the tile will sink and choke the drain. My plan is to lay the tile on the natural bottom where it is hard, and in case of soft bottom, such as quicksand, muck, or any other soft substance, I lay them on a board of some durable wood, filling around them with small stones, as

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it makes it a quicker drain. The cost per rod was as follows: digging, 1s. per rod; cost of tile on ground, 16 cents per rod; laying and filling, 3 cents; saying nothing of boards and small stones used, as the bottom was mostly hard. This makes the cost sum up at 31½ cents per rod, and 8½ cents less than stone drains. The result was that the ground was in order to plow in forty-eight hours after the drains were cut. I was able to get in my barley in good order, and at harvest, instead of reaping in vain over those former wet places; they gave me a better return than the small ridges, which were the main dependence formerly. The whole presented a uniform growth to the eye, which had not been the case before during my farming experience.

The average product per acre was 25 bushels of merchantable barley. I have sown or drilled the field to wheat the past September, and up to the present time it shows no indication of damage by water, which escapes in the drains. There certainly is an increased value of land of not less than $5 per acre annually, together with ease and comfort of tillage.

My system of draining is guided entirely by observation, laying my drains where they will be of the most benefit for present purposes, putting them in as I find they are needed. I do not consider what is called thorough drainage, as I understand it to be, applicable to my farm—that is, to put the drains at regular intervals through the fields, but merely placing them in where there is an indication of surplus water. It is also very essential to keep the mouths of drains open, as they bring more or less dirt to the mouth, and it settles as the water spreads after leaving the drain.

Thus I have thrown together my practical experience for the past year, which is respectfully submitted for your consideration.

WM. P. OTTLEY.

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STATEMENT OF FARM CROPS,

TO WHICH PREMIUMS WERE AWARDED AT WINTER MEETING,

February, 1855.

WINTER WHEAT.—40 BUSHELS 16 LBS. PER ACRE.—JARVIS M. SKINNER, BARRE, ORLEANS COUNTY.

1. Previous crop was indian corn, manured with coarse barn yard manure, about twelve loads per acre, plowed under eight inches deep.

2. The soil is loam; condition of the soil good; location of the farm, six miles east of Medina, one and a half south of Erie canal, bounded on the north by the R. L. Niagara Falls railroad, five miles and a little south of west from Albion.

3. Plowed the middle of June, previous to sowing my wheat, eight inches deep; cultivated in July with a wheel cultivator, and rolled the ground; plowed the second time, somewhat deeper than the first time, the middle of August; harrowed it well, and manured with leached ashes, a little over four loads per acre—twenty loads on the lot, calculated to weigh one ton per load; scattered it as even as could be with a shovel; cultivated the ashes in; Soules wheat, three bushels per acre.

4th. Sowed on the 30th of August, with Seymour's drill, and then rolled the ground; cut the wheat with a grain cradle; raked and bound into sheaves; thrashed with a common thrashing machine, with a separator, and then run through a fanning mill.

The number of bushels of wheat by weight was one hundred and ninety-one bushels and fifty-three pounds; market value, $2 per bushel; marketed at Eagle Harbor mills.

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5. The following is an account of the expense:

Plowing twice, the first time with a yoke of oxen and a span of horses,	$15 00
Cultivating twice,	2 00
Rolling twice,	2 00
Harrowing,	2 50
Cost of ashes, $10; drawing and putting on land, $14,	24 00
Drilling in wheat,	2 38
Cost of seed,	20 00
Harvesting and getting into the barn,	20 00
Thrashing and carrying to market,	15 50
Total,	$103 38
The value of the wheat,	383 76
Net profit,	$280 38

The said crop of wheat was raised without expectation of premium. I have on the ground now seventeen acres cultivated and manured in the same way.

JARVIS M. SKINNER.

Barre, December 2, 1854.

Orleans County, ss: D. W. Cole, being duly sworn, says that he is a practical surveyor, and that he made an accurate survey, with a compass and chain, of the piece of land referred to in the following affidavits of Jarvis M. Skinner and Jarvis Skinner, and that the quantity of land in the piece there referred to is four and seven hundred and sixty-six one thousandth of an acre, (4.766-1000.)

D. W. COLE.

Subscribed and sworn before me, this 2d day of Dec., 1854,

STEPHEN BARRETT,
Justice of the Peace.

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Orleans County, ss: Jarvis M. Skinner, being duly sworn, says that he raised a crop of wheat the past season upon the land surveyed by D. W. Cole, and that the quantity of grain raised thereon was one hundred and ninety-one bushels and fifty-three pounds, (191.53-60,) being at the rate of forty bushels and sixteen pounds to the acre, and that said wheat was weighed accurately; and deponent further says that he was assisted in harvesting and weighing said crop by Jarvis Skinner, and that the statement annexed, subscribed by this deponent, as to the manner of cultivation, expense, &c., is in all respects true, to the best of his knowledge and belief, and that the sample of grain exhibited is a fair average sample of the whole crop.

JARVIS M. SKINNER.

Subscribed and sworn before me, this 2d day of Dec., 1854,

D. W. Cole, *Justice of the Peace.*

Orleans County, ss: Jarvis Skinner, being duly sworn, says that he assisted in harvesting, getting out and measuring the crop of grain referred to in the above affidavit, and the quantity of grain was 191.53-60 bushels, as stated in the affidavit of Jarvis M. Skinner.

JARVIS SKINNER.

Subscribed and sworn before me, this 2d day of Dec., 1854,

D. W. Cole, *Justice of the Peace.*

RYE.—94 BUSHELS FROM 2.23-100 ACRES.—HIRAM CONVERSE, PAMELIA, JEFFERSON COUNTY.

Soil is clay loam; had been in pasture seven years before seeding; it had been well manured with stable manure, and one hundred bushels of lime to the acre; it was plowed in the fall of 1853; sowed in the spring with spring wheat; plowed in August seven inches deep; sowed the first week in September to rye, two bushels to the acre, put in with drag and wheel cultivator, without any manure; harvested the 15th of July, 1854; thrashed in the fall, with flail.

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Yield from 2 23-100 acres, 94 bush., worth $1 per bush.,	$94 00
Straw sold for	22 00
Total,	$116 00

The following is an account of the expense:

Seed,	$4 00
Plowing and sowing,	3 50
Cultivating and harrowing,	2 00
Cutting and binding,	6 00
Drawing to barn,	3 50
Thrashing and cleaning,	9 00
Total,	$28 00
Balance,	$88 00

HIRAM CONVERSE.

(Proofs as required by the Society.)

POLAND OATS.—85.1-32 BUSHELS PER ACRE.—E. M. BRADLEY, ONTARIO COUNTY.

The ground on which this crop of oats was raised was in the spring of 1853 manured with about thirty loads of common barn yard manure to the acre, plowed and planted to corn, and yielded sixty bushels of shelled corn per acre. The soil is a gravelly loam, from eight to ten inches in depth, and has a sub-soil of red clay; the field lies sloping to the south and east. No manure was applied for this crop. In the month of November, 1853, the land was plowed, with a single team, about eight inches deep. The second week of April, 1854, the ground was thoroughly harrowed, and sowed with 2½ bushels of the white Poland, or potato oat, to the acre; the seed was well harrowed in, and the field rolled; no further culture. The crop was ripe, and cut the last week in July (being a week or ten days earlier than the common oat); cut with a common hand cradle; bound in small sheaves, and set up in stoocks and capped; let stand until thoroughly dry, and then hauled into barn; thrashed and cleaned

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with a machine the middle of October, and found to yield one hundred and sixty-seven and a half bushels of good merchantable oats, weighing 39 lbs. per bushel; being equal to 204⅛ bushels, of 32 lbs. per bushel.

The expenses of the crop were as follows:

Three days plowing, harrowing and rolling, $2,.....	$6 00
Six bushels of seed, $2; sowing the same, 2s.,.....	12 25
Three days harvesting, $1.50,.....	4 50
Moving to the barn,.....	2 00
Thrashing and measuring crop,.....	7 50
Interest on land, at $75 per acre,.....	12 60
Total cost of crop,.....	$44 85

The value of the crop was as follows:

167½ bushels of oats, worth $1 per bushel, ...	$167 50
6 loads of straw, at $2, ...	12 00
	$179 50
Deduct cost of crop, ...	44 85
Net value of crop,.....	$134 65

Equal to $56.10 per acre.

The number of bushels per acre of the Poland oats was 69 79-100 bushels, and weighing 39 lbs. per bushel; equal to 85 1-32 bushels, at the standard weight of 32 bushels per acre.

ELISHA M. BRADLEY.

(Proofs as required by the rules of the Society.)

COMMON OATS—82⅛ BUSHELS PER ACRE.—STATEMENT OF E. M. BRADLEY, ONTARIO COUNTY

The field upon which this crop of oats was raised was in the spring of 1853 manured with about forty loads of common barn-yard manure to the acre, plowed and planted to corn, and yielded eighty bushels of shelled corn per acre.

The soil is a gravelly loam, about ten inches deep, with a sub-soil of red clay.

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The field lies gently sloping to the north, and has ten apple trees standing upon it. No manure was applied for this crop.

In the month of November, 1853, the land was plowed with a single team to the depth of eight inches. The second week of April, 1854, the ground was thoroughly harrowed, and sowed with three bushels of the common mixed variety of oats to the acre, the seed well harrowed in, and the field rolled with a cast iron roller. No further culture.

The crop was ripe, and cut with a common hand cradle the first week in August; bound in small sheaves, put in stoocks, and capped. Allowed to stand until thoroughly dry, when it was hauled to the barn. Thrashed and cleaned with a machine the middle of October, and found to yield two hundred and eighty and one fourth bushels of good merchantable oats. The expenses of the crop were as follows:

Two days plowing, hand and team, at 16s.,	$4 00
Two days harrowing and rolling at 16s.,	4 00
10 bushels seed at 4s., sowing the same 3s.,	5 38
Three days cutting and binding at 12s.,	4 50
¾ day setting up and capping at 12s.,	1 13
Moving to the barn,	2 00
Thrashing and measuring crop,	12 60
Interest on land at $75 per acre,	17 90
Total cost of crop,	$51 51

The value of the crop was as follows:

280¼ bushels of oats at 4s.,	$140 13
9 loads of good oat straw at 16s.,	18 00
	$158 13
Deduct cost of crop,	51 51
Nett value of crop,	$106 62

Equal to $31.56 per acre. (82⅛ bushels per acre.)

ELISHA M. BRADLEY.

(Proofs as required by rules of the Society.)

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CULTIVATION OF BROOM CORN.—ELIJAH CHESEBRO, GUILDERLAND, ALBANY COUNTY.

My farm is located in the town of Guilderland, Albany county, upon the Normanskill. The soil of that part of it devoted to broom corn is black alluvial. I commence plowing about the 10th of May, or as soon as the land is fit to work without injuring it. The plow used is Clute's No. 2½, built higher than usual under the beam for the purpose of deep plowing and turning under the old stalks of the preceding year. After plowing a section of some three acres or upwards, varying in size with the force employed, I immediately pass over it with an inverted harrow for the purpose of leveling. If there are no lumps, follow the harrow with a roller of medium weight, which settles remaining inequalities and leaves a uniform surface. If lumpy, harrow and roll till lumps disappear. I then mark it one way with a marker, rows three feet two inches apart. I follow these marks with Gray's broom-corn drill, which deposites from two to three quarts of seed to the acre, covering and packing the dirt upon the seed by means of a small roller, at the same time. It is then left till the blade reaches from two to three inches above the surface, when I pass between the rows with a scraping cultivator, a machine upon the cultivator principle, with two semi-cylindrical knives, so managed as to remove all lumps, weeds and grass from near the corn, and deposit them at an equal distance from each row. This greatly facilitates the scraping with the hoe, which immediately follows the machine. As soon as possible after scraping I pass through with the cultivator, using the half teeth with the mould-board inward. Immediately after cultivating the first time I cultivate again, my object being to keep the soil loose and mellow. No hoeing is necessary.

Soon after cultivating the second time the hilling and final operation commences, which is very speedily and effectually performed by means of the Ohio shovel plow, which I consider a decided improvement upon the double mould board in any kind of soil, it requiring but little more than half the force to propel it, and places the dirt so closely to the corn that there is no occasion for using the hoe. The growth of the corn is now exceedingly rapid, advancing,

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at times when the weather is warm and moist, from six to eight inches in 24 hours, till early in August, when the brush appears. This is fully developed by the latter part of August or the early part of September, though the seed may not be entirely filled. If I wish to harvest my brush green, I pay no attention to the seed, but commence cutting as soon as the whisk is advanced beyond the last leaf. If I wish to preserve the seed, I let it remain till it turns slightly red.

Previous to cutting I pass through the rows and bend or break the whisk down to a convenient height for cutting, taking care to bend it in the direction in which it will be least exposed to the sun. This prevents it from turning red as rapidly as it would did it remain standing. The brush is cut from five to seven inches from the hurl, and placed in heaps at convenient distances through the field. These are immediately gathered into the wagon and taken to the barn, where the brush is sorted over and put into handfuls, the brush of each handful being of equal length. The seed is taken off by a double cylinder scraper, driven by one of Wheeler & Melick's single horse-powers. The brush is then spread upon poles from one to two inches thick for drying, which, if the weather is dry and windy, is sufficiently accomplished for manufacturing in from eight to ten days. By gathering the brush while it is green, and not permitting the seed to ripen, I am enabled to crop the same piece of land for successive years with no other manure than the stalks of the preceding season, as it is the ripening of the seed and not the growth of the stalk which exhausts the soil. This season my crop has averaged some 500 lbs. per acre, though there are portions of it which would produce 800 lbs. per acre. My best and largest brush was gathered from sections which, until two years since, when I purchased were principally bog and water holes. But by the immediate use of under drains of tile, I have been enabled entirely to reclaim them. Brush has sold readily at from eight to ten cents per pound, the supply at that coming far short of the demand.

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REPORT OF THE COMMITTEE ON FRUITS—WINTER MEETING.

The committee on fruits report that the exhibition of winter apples was respectable, but the exhibitors not numerous. Some seedling fruit was exhibited by W. Ives, of Watertown, D. A. Bulkley, of Williamstown, Mass., and William Newcomb, of Pittstown, and several other contributors, some of fair and good qualities, but none so excellent as to be deemed worthy of special mention or general cultivation. Levi Shaw, of Rensselaerville, Albany Co., exhibited a curious and interesting specimen of the Roxbury Russett, upon the roots of whose parent tree a stream of the washings of a manure heap had been directed for three years; the result was, that the apple is swelled to three times its original size, and the russett appearance very slightly remains, while the fruit assumes a slightly red color, and is of a vastly improved flavor.

Some grapes were exhibited by V. Burgess, of Chatham, Columbia county, but were not preserved sufficiently well to be entitled to special commendation.

A specimen of currant wine was exhibited by William Davidson, of Hartwick, Otsego Co., made of the juice of the currant, sweetened with maple sugar, but the sugar was a little burnt, or else the taste of the maple joined with that of the juice communicated a bitter and unpalatable taste to the wine.

E. S. Hayward, of Rochester, exhibited two specimens of wine, the one from the Isabella grape, one year old—quite clear, fine and pleasant—the other, made from currant juice and sugar only, deemed very good, for which two specimens your committee recommend that a small premium be awarded to the exhibitor.

SAMUEL MILLER,
Chairman.

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FRUIT CULTURE, BERKSHIRE CO., MASSACHUSETTS.

BY WM. BACON, RICHMOND, MASS.

Berkshire is the most westerly county of Massachusetts, and lies between 42° 1″ 30′, and 42° 43″ north latitude. Its west line, separating it from the State of New-York, follows the Taconic hills, sometimes running on their summit, and sometimes throwing them into the State of Massachusetts. The east line, separating it from Franklin, Hampshire and Hampden counties, is along the summit of the Green Mountain range, which, in some localities, attain an elevation of 2,000 feet above the valley, though their average height is probably less than 1,600 feet. Aside from these elevations, along the eastern and western boundaries there are several detached mountains lying wholly in the county, Saddleback, on the north, rises 2,800 feet above the valley of the Hoosic which passes its northern base in Williamstown, and is 3,500 feet above tide water at Albany, and is the highest land in Massachusetts. Saddleback rises too abruptly from the north to admit of its being valuable for cultivation, but passing southerly in Lanesboro and Pittsfield, the range subsides into a beautiful ridge of land valuable for all purposes of cultivation. Lenox mountain rises in a like abrupt manner in Pittsfield, and passes southerly between Lenox and Richmond, Stockbridge and West Stockbrige, into Barrington. At the base of this mountain, and above the legitimate valley, is, on either side, fine table lands of narrow width, but great strength of soil. The mountain, in several localities, is cultivated to its summit, and where this is done remunerative crops reward the farmer for his labor. In the south-east part of the county the surface is much varied by broken mountainous ridges, which are separated by narrow and fertile valleys.

Berkshire is watered by the Housatonic, a small stream which rises in Windsor and Hinsdale, on the Greenmountain range. These upper sources of the river unite in Dalton, where they flow several hundred acres of beautiful meadow, in their passage westerly to Pittsfield, where they receive tributaries from Lanesboro and Richmond, and thence take a southerly but tortuous course through the county (drinking in the mountain streams

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from either side in their passage) into Connecticut, and thence into Long Island Sound.

Hoosic river rises in Lanesboro and passes easterly into Cheshire, thence northerly through that town and Adams to the foot of Clarksburg mountain, where it turns westerly to Williamstown, thence northerly through Pownal, Vt., into the State of New York, and empties into the Hudson, at Schaghticoke.

The principal valleys of the county are along these two streams and their tributaries, and vary of course in their elevation above their beds. The principal stream, Housatonic, where it reaches Connecticut line, is 612 feet above the Sound.

Geologically, Berkshire belongs to the primitive formation; its alluvial lands are limited to narrow borders of the streams we have noticed, and some few of their tributaries. Commencing on the western borders, along the Taconic hills, we have the primitive argillaceous. Descending easterly into the valley we strike the range of lime rock which extends from the Sound to Canada, and which is found in various qualities from loose and easily disintegrated sandstone to beautiful and durable marble. Further east we find the highlands composed of mica slate; then again lime; then again mica slate quartz rock, with some gneiss and granite. Such are the materials, worn down, which enter into the composition of the soil, which, for the most part, is of a clayey nature, and much of it based upon a stiff subsoil.

The early settlers of Berkshire were principally of English origin, and moved into the county from the middle and eastern parts of Massachusetts, and from Connecticut. The first settlement in the county commenced at Sheffield in 1725. It appears to have been a primary object with the early settlers to plant apple orchards as soon as lands could be brought into cultivation, and these orchards were procured, either from seeds brought by the emigrant from the old homestead, or from trees from the same source. As the settlement of the country progressed, the quantity of orcharding appears to have increased in the same ratio. Such fruits as the trees naturally produced appears to have been in most cases satisfactory, though in repeated instances the better varieties of these seedlings were to some extent introduced into the neighbor-

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ing orchards by the old laborious method of grafting and protecting the graft with *clay and swingle tow.* But the raising of choice apples was of small consideration beyond the supply of the family, who naturally supposed the best their orchard afforded was the best extant; and as no markets then existed for fruit it was no object to raise for market. The surplus of apples was converted into cider, and that disposed of wherever a market was open. In this way fruit culture went on, subject only to slight improvements, and these in cases far between until within the present century, when western Massachusetts became noted for the extent of its apple orchards and their prolific character. The fruit, such as it was, had become a drug, yet to cut down any portion of the orchard would have been deemed a sacrilege. The war of 1812, however, opened a new market, and distilleries of cider brandy were established almost as numerous as churches to work up the liberal supplies which those days afforded. The calls from the U. S. government for this brandy made the business of its manufacture one of quick and great profit. But this demand, with the close of the war, had an end, from which time the introduction of finer fruits may be dated. Many orchards were improved by engrafting a few trees with the Greening, Redstreak, Swaar, Spitzenburg and Seeknofurther.

Then came the temperance reformation, and laid the axe at the root not only of many trees, but in some cases whole orchards fell before it—as though apples were unfit food for any but the human species. A better view of things has, however, presented itself, and the value of the apple for all kinds of farm stock seems to be pretty well understood.

The war to which we have alluded led to the establishment of many manufacturing villages in the county, and these villages made new demands upon the orchards for fruit for household purposes. This, with the fact that most people had learned that good fruit was not only pleasant to the taste, but healthful, led to increased attention in the culture of the better varieties, and many of the old orchards in due time came out with new crops, displaying gorgeous and fanciful fruits.

The first nursery for the sale of engrafted fruit trees was started in Stockbridge, by Messrs. Hull, about the year 1825, and the

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home demand for trees was more than equal to the supply; and subsequently more extensive nurseries have been started and kept up by Hon. Wm. Williams, of that town, and the Hon. Asahel Foote, of Williamstown, from both of which large quantities of trees are annually sent out.

The opening of the Western railroad, in 1841, placed the market for choice fruits from this region on a firm footing. Since that period the price of the better kinds of apples has never been less than fifty cents a bushel, delivered at the nearest station, and often the price has been higher. The varieties now under culture in this region embrace all of the most marketable kinds, and the success that attends their culture, when *properly* cultivated, is of the most ample and cheering nature.

The apple tree here, when planted in a proper soil and with proper culture, is subject to no particular disease. Its enemies, in the form of insects, are the borer, which should be destroyed by the knife, if no other means can be adopted, as soon as its mischievous work commences. The canker worm will sometimes weave his mischievous web among the branches, but by seasonable care in destroying them, which can easily be done with a long pole, their ravages may be stopped, and the number of the next generation greatly diminished. In 1853 some injury was sustained from the palmer worm in the lower valley of the Housatonic, but its ravages were circumscribed to a narrow sphere and limited extent.

That the cultivation of the apple for market will one day become a great employment for the agriculturist in Berkshire, we think is pretty certain; our soil and climate are admirably adapted to the business, especially our loams inclining to clay, which, when thoroughly cultivated for any crop yield highly remunerative rewards. Such soils, when thoroughly and deeply pulverized, retain their moisture well in dry seasons, without being over-saturated in wet ones, qualities of the first importance in raising this fruit, for when the effects of drouth are operating in the soil they will develop themselves in the stinted, ill-formed and badly flavored character of the fruit. This difference is sometimes seen in our county. In our deep gravelly soils the fairness

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and flavor of the apple is often rendered deficient through want of moisture in the earth.

The longevity of apple trees in this region (when they are managed as trees should be) gives us renewed assurance that this section is admirably adapted to their growth; many of the trees that formed a part of the primitive orchards are now standing, and flourishing in a thrifty and productive old age, and, wherever proper nourishment has been given to keep them in this healthful state, the fruit suffers no diminution of character from the age of the trees.

That success in the rearing of apple orchards, or that this longevity among trees has been universal, we do not claim. The exceptions have probably been much more frequent than the fact. But we do claim that when healthful and vigorous trees have been properly set, and after culture has been such as the merits of the object have demanded, and the profits would eventually warrant in a rich percentage, the cultivators of western Massachusetts have, so far, had not the least cause to complain of want of success. There is much labor and watchfulness required in this business, but it is a labor of pleasure, and is to many of our farmers becoming one of great profit.

The advances of spring are usually tardy, but when it comes all nature feels its influence, and starts forth in simultaneous and rapid growth. The time of the blossoming of the apple varies from the tenth to the twentieth of May—at either of which dates the danger of late frosts, to which many regions are so subject, are ordinarily pretty well past.

The culture of the pear has, until within the last fifteen years, received but a meager attention; a few seedling trees were seen growing, varying in number from one to half a dozen, in vicinity of the dwelling; sometimes by the way-side (there was no danger of the boys robbing such pear trees—their crabbed, hard, dry fruit, was its own protection); sometimes in a field; or it may be one or two in an obscure corner of what was called the garden. Sometimes one of these seedling trees, from a freak of nature, produced passable fruit. Some of the more enterprizing had grafted their trees, and were provided with wholesome, though seldom first rate pears. But, slow as the progress of improve-

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ment had been, one important fact had fully developed itself. The pear tree had shown it could attain a large size and a good old age among these hills. So it only remained for man to decide that he would no longer deprive himself of its melting richness and continuous varieties, as they had been developed in other lands. Its culture, both as a standard and dwarf, is beginning in some places to receive merited attention, and with a success which should induce every landholder to enter largely into its cultivation.

The cherry, too, through the energy of enterprizing cultivators, is found to be well at home in our soil. It is subject to but very few enemies—the principal of which are the birds, which should probably be called its friends, rather than enemies, from the love they bear to its fruit and the insects that prey upon it. They are the farmer's friends, too, and he should treat them as such by providing for their dainty appetite as well as his own.

It was, until within a few years, supposed that every effort to cultivate the peach must necessarily result in a loss of labor, and a loss of the land on which they grew. Late years have given a most cheering result, however, in efforts in its behalf. At the county horticultural exhibitions, for the last seven years, the peach, we believe, without the exemption of a single year, has come to take its place among the fruits—wearing upon its cheek the ruddy hue of blushing loveliness. At the last exhibition, it was presented in varieties and quality which would have gladdened its cultivators in other soils, and beneath the more ardent rays of the sun. Specimens were presented from several towns, and one individual boasted twenty-two varieties of seedlings on the table, all of which were much better than none, and several of them well worthy of general cultivation.

The plum receives some attention in its culture, and merits more. The soil and climate are truly favorable to its growth. The curculio and the black spot on its branches are its only enemies, and these are enough to discourage too many from any effort in its behalf. For the former, keeping the earth under the

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tree clean from green crops, and giving a liberal quantity of salt, say a quart to the tree, to the surface in March, is the best remedy we have tried. For the latter we know of no cure only to cut off diseased branches and destroy them, an operation which, if thoroughly performed, might in some instances lead to the destruction of the tree. The true cause of this evil is to us unknown. One thing, however, we do know. In summer, when these black excrescences are coming on, we have often found a small worm in their center. And now the question is, whether the worm produces the excrescence or whether the excrescence is not originated and increased for the maturing of the worm. The worm we cannot believe to be self-existent, but on the contrary, that an egg was at some time deposited in the bark, which, under proper influences, produced it; and if so, why is it not probable that the insect which deposited the worm also deposited poison in the bark, which caused the excrescence?

This is a point we shall not attempt to decide. We are, however, confident that the disease is propagated by insects, and that as long as A suffers the excrescence to remain on his trees, B, who is his next neighbor, will labor in vain, unless he labors very hard, to keep them from his. A general destruction of infected branches must take place in order to effect a cure.

The quince is subject to only one enemy, and that is the borer. The same remedy will apply to its eradication here that is successful in the apple tree. Watch them close, and cut them out as soon as evidence of their labor is visible. Experience has taught that it may be successfully grafted on the thorn, and thus escape the borer, while it makes beautiful shrubs, free from the bushiness at the ground to which, on its own roots, it is so liable. This fruit at present is cultivated only in gardens, mainly for family use. A surplus supply always fetches a good price, varying from $1 to $1.25 per bushel.

When we take into account the ease with which this fruit is grown, and the quantity that would be produced on an acre of land with proper cultivation, we are confident that if fruit growers paid more attention to rearing it they would find it profitable doing so. The apple or orange quince is the variety most culti-

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vated. It attains a good size, has a high flavor, and is ready for market in the month of October.

We have been more particular in our description of this section of country to substantiate the position we have assumed, that its soil and climate are admirably adapted to raising all the important fruits peculiar to the temperate regions. In remarking on this subject we would not be understood to confine this fruit-growing quality to the territory to which we have alluded. On the contrary, we suppose that the same facilities exist over the same formation, which extends with some modifications from the Sound to Canada, and widens, under no unfavorable circumstances, from the Hudson to the Connecticut river; and if we are not very much mistaken, some future day will show our prediction—now sanctioned by many—fully verified, that there is no spot better adapted to become a vast and productive orchard than the tract we have noticed.

We are aware that there are many, very many, who will denounce the idea we have advanced as too visionary to admit even of a probability of its fulfilment. But we predicate our opinion upon the result of experiments that have been made—facts that really exist, isolated to some extent, to be sure, but varied and numerous enough for our purpose. We know very well that while many are successful in raising fruit trees, there are many who fail in their efforts; but where these failures exist they may almost invariably be traced to the condition of the soil, and not the soil itself, and from a lack of care in transplanting, and after culture. There are yet too many who believe that if a tree is jammed into the earth between almost unbroken sods, and left to itself in after time, they have done their duty.

With regard to preparation of soil, much of it requires under draining, and all of it a *thorough and deep* pulverization. In doing this, if liberal quantities of vegetable mold or decomposable sub stances can be mixed with it, all the better. Of the last, our swamps and lowlands furnish inexhaustable supplies, and our lime ledges, when torn to pieces and burnt, furnish an excellent decomposer of these substances, as well as contributor to the health of trees. This thorough culture, and the same judicious

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after culture which is most beneficial to the growth of the orchard, will increase the value of the crops raised in connection, enough to defray all extra expense, leaving the growth of the trees and their produce a clear profit.

EARLIEST PUBLIC ENCOURAGEMENT OF THE CULTIVATION OF THE GRAPE AND WINE IN NEW-YORK.

B. P. JOHNSON, SEC. STATE AGRICULTURAL SOCIETY.

It is highly probable that the following is the earliest bounty offered for the cultivation of the grape, and the manufacture of wine within the limits of the present State of New-York.

It is copied verbatim and literatim from a record in the office of the Secretary of State at Albany, and from its date it will be seen that the premium was offered in the first year of the English colonial government of New-York. It is recorded in deeds, vol. ii. page 87. FRANKLIN B. HOUGH.

ALBANY, *April* 4, 1855.

"Whereas Paul Richards an inhabitant of this Citty of New York hath made knowne to mee his intent to plant vines at a certaine Plantation that hee hath upon Long Island, called the little ffiefe, which if it succeed, may redound very much to the future benefitt and advantage of the inhabitants within this Government; and in regard, it will require much labour and a considerable charge to provide vines and to p'pare the ground and make it fitt for production of wines; ffor an Encouragem^t to the said Paul Richards in his proceedings therein, I have thought fitt to grant unto him these following priveleges (viz.)

"That all wines of the growth of such vines as the said Paul Richards shall plant, or cause to bee planted at the place aforesaid, shall be ffree from any kind of impositions for ever if sold in grosse, and not by retaile:

"That the said Paul Richards, his heirs, executo^rs, or assignes shall have the privelege to have such wines sold by retaile in any one house in New York for the term of thirty years to come, from

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the time of the first selling of his wines, ffree from all imposts or excise:

"That every person that shall hereafter for thirty years to come, plant vines in any place within this Government, shall upon the first yeares improvement pay unto the said Paul Richards, his heirs, executors or assignes, five shillings for every acre so planted as an acknowledgement of his being the first undertaker and planter of vines in these parts, ffor the confirmacon of the priveleges above specified. I have hereunto put my hand and seale.

"Given at ffort James in New York this 10th day of January, 1664. RIC. NICOLLS."

[*First English Governor.*]

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RAIN:—EVAPORATION AND FILTRATION.

BY GEORGE GEDDES, CIVIL ENGINEER.

"All the rivers run into the sea: yet the sea is not full; unto the place from whence the rivers come thither they return again."—*Bible.*

[Society's Gold medal awarded.]

The following table is copied from the Reports of the Regents of the University made to the Legislature of the State of New York in 1850:

Academies.	Years.	Mean Temperature.		Years.	Prevailing winds.	Years.	Average q'nt'y of rain. Inches.
Albany,.....	24	48°	43′	24	S.	21	40.92
Auburn, ...	22	46	62	22	N. W.	21	34.56
Cayuga, ...	12	48	69	13	S.	....	.....
Cherry Valley,...	16	44	15	15	W.	11	40.83
Clinton, ...	17	48	74	17	N. W.	16	38.59
Cortland,.....	17	44	54	17	N. W.	....	.....
Dutchess, ...	17	51	08	17	N.	14	38.13
Erasmus Hall,...	24	51	61	24	N. W.	24	42.76
Fairfield, ...	19	43	26	20	W. & N. W.	17	36.60
Farmers' Hall, ..	13	47	35	13	S. W.	....	.....
Plattsburgh,.....	....	.....	.....	13	N. W.	...	.....
Fredonia, ...	18	48	50	18	W.	17	36.51
Gouverneur, ...	13	43	66	13	S. W.	....	.....
Granville, ...	14	45	39	15	N.	15	31.07
Hamilton, ...	18	45	00	20	N. W.	18	34.51
Hartwick, ...	16	46	49	16	S.	14	37.09
Hudson,.....	17	48	31	18	S.	17	36.19
Ithaca,.....	17	48	38	16	N. W.	13	30.78
Johnstown,.....	14	44	95	16	W.	14	39.89
Kinderhook, ...	17	46	51	17	N.	17	36.40
Kingston, ...	19	49	38	20	N. E.	19	37.53
Lansingburgh, ..	20	47	97	20	S.	20	34.01
Lewiston,.....	18	48	16	18	S. W.	12	22.41
Lowville,.....	20	43	74	19	S.	18	32.46

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RAIN.—(CONTINUED.)

Academies.	Years.	Mean Temperature.	Years.	Prevailing winds.	Years.	Average q'nt'y of rain. Inches.
Mexico,..... ...	12	44° 04′	12	W.	12	31.49
Middlebury,.....	19	46 77	19	S. W.	17	30.47
Montgomery, ...	14	48 54	14	W. & N.W.	14	34.95
Mount Pleasant,..	13	49 23	13	N. W.	12	36.19
Newburgh, ...	20	49 67	19	S. W.	18	35.55
North Salem,.....	18	48 07	18	N. W.	17	40.53
Oneida Conference.	20	43 54	19	N. W.	20	38.34
Onondaga,.....	16	47 18	16	W.	16	31.40
Oxford,.....	17	45 06	18	W.	18	35.95
Pompey, ...	17	42 84	17	N. W.	15	29.46
Redhook,.....	12	48 36	12	S.		
Rochester, ...	18	46 74	18	N. W.	17	31.20
St. Lawrence, ...	21	43 61	22	S. W.	19	28.05
Union Hall,.....	24	49 82	24	N. W.	24	38.93
Utica,.....	23	45 68	22	W.	19	40.57

From this table it appears that the average annual fall of rain and snow equals 35 28-100 inches of water over the surface of this State. This water is returned to the clouds by evaporation from the surface of the earth, from the surfaces of all vegetables, and finally from the surface of water in ponds, lakes and seas. This round of evaporation, and rain and snow falling, is constantly going on, and from it we derive our wells, springs and rivers, and the moisture necessary to support vegetable life.

The laws that govern the fall of water from the clouds have within the last one hundred years, been the subject of study and observation in many extensive districts of country, and are now sufficiently well understood to be of practical value, not only to the engineer but to the farmer.

In the warm latitudes evaporation is rapid, and, as a consequence, the air being overloaded with vapor, it frequently discharges it in showers, so that in some places more than 200 inches fall in one year. The evaporation from the surface of water being much greater than from the land: clouds that are wafted by the winds from the sea to the land condense their vapor upon the

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colder hills and mountain sides, and yield rain, while clouds driven by the wind from the interior to the shore give no rain.

South America is plentifully watered on the eastern slope by the trade winds that constantly come from the sea; passing up the sides of the mountains and high table lands they are cooled, and lose their capacity to hold vapor as before. The vapor is condensed into clouds, and they soon yield abundant rains. These winds pass over the chain of mountains, having lost the water they contained, and leave a desert on the west side of the range. On the east side of the mountains are the plains of Upper Paraguay, which are inundated with water; on the west side is the desert of Atacama, on which there falls no rain. The high lands are the great condensers. The winds from the Mediterranean sea, though loaded with vapor, give no water to the desert of Sahara—for its plain is too low to be cool in that latitude. A chain of mountains there would make that desert verdant.

In general, countries situated near the sea have more rain than those remote from it, in the same latitude. Thus England receives, as stated by Guyot, 32 inches in a year, and has 156 rainy days.

Western France,.....	25 inches,	and has	152	rainy days.
Eastern France,.....	22	do	147	do
Central and North Germany,..	20	do	150	do
Hungary,.....	17	do	111	do
Eastern Russia,.....	14	do	90	do

Cambridge, Mass., has 38 inches of rain.

Western Reserve College, Ohio, has 36 inches.

Fort Crawford, Wisconsin, has 30 inches.

So that on each side of the Atlantic we find that there is more rain on the coast than in the interior of the country.

At those latitudes where the trade winds prevail, we have seen that the direction of the winds and mountain ranges determined the amount of rain; while in the latitude of this State, and in Central Europe, proximity to the great bodies of water shows a marked influence.

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At Rochester, which has a prevailing northwest wind from Lake Ontario, rain and snow falls 31.20 inches, and in 177 different days in the year. Hamilton, on high land, and quite in the interior, has 34.51 inches of rain and snow, which fall in 152 different days. Ithaca has only 30.78 inches, and only 139 rainy and snowy days. Ithaca is in a deep, narrow valley, and no very considerable water surface near to charge the winds with vapor. Though less rain falls in a year at Rochester than at Hamilton, there are 25 more wet days at the first named place than at the latter. The quantity of water that falls in the course of the year is no sure indication of distribution through the season. At the equator the annual fall is 95 inches, which falls in 78 or 80 days, while at St Petersburgh the annual amount is 17 inches, which falls in 169 days. In the warm latitudes rain falls in torrents, while in the temperate it descends in frequent and gentle showers.

A sea coast in a temperate latitude, on which the winds constantly or generally blow from off the water, with high lands near the coast, and particularly if the course of the winds is from a warmer climate, will have many rainy days. The western side of *emerald* Ireland has 208 rainy days in the 365, while England has, as has been before stated, 156 rainy days in the year.

The great importance of seasonable showers to the farmer is well understood; and perhaps there would be no one better indication of the agricultural capacities of a country than the records of the rain guage—giving the number of rainy days in each month, with the quantity of water that fell, for a few successive years.

When the spring commences the earth is usually saturated with water to a great depth, and so low down that the springs are all discharging their greatest quantity. Wheat sown the fall before, and well rooted, starts forward vigorously before the ground can dry up, and a few showers in May and June insure a large growth. Not so with corn, and the other spring crops. Dry weather must commence before the ground is in a condition to receive them; and as they take the whole season to grow and ripen, many seasonable showers are necessary to their production with success.

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The corn crop may be quite unpromising the last day of June, and yet on the first day of September the whole aspect may be changed. July and August, if warm and wet, make a crop of corn in this State. Wheat is better off if these months are dry and comparatively cool. So it rarely happens that both corn and wheat succeed fully in the same year—but sometimes they do.

One of the things to be looked at in selecting a new home is the rain guage; and the Government would do the world a great favor to have rain guages kept at all the frontier posts, and at every station in the country, and yearly publish the reports, properly arranged in tables, for every week.

When the frost leaves the ground in the spring it is full of water, and a cubic foot of this saturated earth is to water in its specific gravity as five to three; dried to the moisture suitable to have seed put in it, it *loses* one-twelfth of its weight; when perfectly dried it loses one-third.

Mr. Dalton, in making his experiments, came to the conclusion that when it had lost one-sixth of its weight, by drying, it was not too dry to support vegetation. When it had lost two-ninths it appeared like top soil in summer. Hence every foot of earth in depth, so saturated, contains seven inches of water, and it may part with a quarter of its water, or even one-half, and not be too dry for supporting vegetation. This is the fund of water with which we start in spring—say three inches in depth, within one foot of the top of the ground. Roots of plants go down lower than this, if the soil is mellow and not flooded with water.

Mr. Dalton's experiments, made with a cylindrical vessel, ten inches in diameter, three feet deep, filled with gravel, sand and soil—having a discharge pipe at the bottom, by which to measure the quantity of water that run off, and which gave perfect drainage—the top of the soil being covered with grass, the whole buried so that the top was even with the ground, shows that earth that is moderately moist will take up three inches of water without carrying it beyond the point of saturation. This amount had in the preceding dry month been taken up by the plants and evaporated, and, without making the soil too dry, had so drawn upon it that it could imbibe three inches, which fell in four days.

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Ordinary plowing does not bring into use more than six inches in depth of soil; extraordinary plowing may reach as low as one foot. Sub-soiling and trenching to the depth of three feet would give to the plants all that Mr. Dalton claims for his experiments.

Where ground is cultivated only six inches deep, it only holds, subject to the purposes of vegetation, (if no account is made of water rising up through the hard earth beneath,) one inch and a half of water. If cultivation goes down one foot, the quantity of available water is doubled. If the soil is broken up still deeper, though it may be that the roots of the plants may not go down beyond a foot, yet the water from lower down will rise up by capillary attraction, and supply the evaporation from the superior parts of the soil. So it results that while one foot of earth will hold, for the uses of vegetation, three inches of water, three feet will hold so much that it can part (without becoming too dry) with three inches, and then receive in the course of a four days' rain another three inches, without overflow or discharging from the drains beneath.

A soil that holds no water for the use of plants below six inches, will suffer from drouth in ten days in June, July or August. If the soil is in suitable condition to hold water to the depth of three feet, it would supply sufficient moisture for the whole months of June, July and August.

M. de la Hire has shown that at Paris a vessel, sixteen inches deep, filled with sand and loam, discharged water through the pipe at the bottom until the "herbs" were somewhat grown, when the discharge ceased, and the rains were insufficient, and it was necessary to water them. The fall of water at Paris is stated in this account at twenty inches in the year, which is less than the average, and the experiment must have been made in a very dry season; but the important point proved by it is that the plants when grown up draw largely from the ground, and thereby much increase the evaporation from a given surface of earth. The result of the experiment is entirely in accordance with what would have been expected by a person conversant with the laws of vegetation.

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Rain is not the only source of supply of moisture to plants; they absorb moisture from the air; and dews, which though they cannot be measured in the rain gauge, assist very much in time of drought. But dews and atmospheric moisture are not like rain—susceptible of being treasured up in subterranean reservoirs, by deep tillage—and therefore have not been taken into consideration in these investigations. It may, though not necessary to the inquiries now before us, be well to observe that Bishop Watson made some experiments that went to show that "during the time of bright hot sun, when there had been no rain for a month, the evaporation from grass was at the rate of .035 inches in twelve hours. Another experiment one day after a thunder storm gave .087 in twelve hours. The mean is .061 inch." The evaporation of .035 in twelve hours in a drought of a month's continuance, gives, allowing the evaporation to go on only during twelve hours in each day for a month, 1.05 inches. This must have been principally supplied to the plants during nights, in the form of vapor and dew, as it is not probable, after a month without rain, that earth tilled to the ordinary depth would afford much more moisture than it received from these sources.

The experiments upon evaporation and drainage made on Mr. Dalton's plan were in vessels three feet deep, filled with soil just in the condition to secure perfect freedom from excess of water, and the drainage was determined by the amount of water that passed out of the tube at the bottom. These experiments have been most perfectly made in England by Mr. John Dickinson. The following table exhibits the mean of eight years:

YEAR.	October to March.			April to September.			Total of each year.		
	Rain.	Filtration.	Per cent filtered.	Rain.	Filtration.	Per cent filtered.	Rain.	Filtration.	Per cent filtered.
1836, ...	18.80	15.55	82.7	12.20	2.10	17.3	31.00	17.65	56.9
1837, ...	11.30	6.85	60.6	9.80	0.10	1.0	21.10	6.95	32.9
1838, ...	12.32	8.45	68.8	10.81	0.12	1.2	23.13	8.57	37.0
1839, ...	13.87	12.31	88.2	17.41	2.60	15.0	31.28	14.91	47.6
1840, ...	11.76	8.19	69.6	9.68	0.00	0.0	21.44	8.19	38.2
1841, ...	16.81	14.19	84.2	15.26	0.00	0.0	32.10	14.19	44.2
1842, ...	14.28	10.46	73.2	12.15	1.30	10.7	26.43	11.76	44.4
1843, ...	12.43	7.11	57.2	14.04	0.99	7.1	26.47	8.10	36.0
Mean, ...	13.95	10.39	74.5	12.67	0.90	7.1	26.61	11.29	42.4

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The mean of each month for the eight years is:

MONTHS.	Rain. Inches.	Filtration. Inches.	Per cent filtered.
January,	1.84	1.30	70.7
February,	1.97	1.54	78.4
March,	1.61	1.08	66.6
April,	1.45	0.30	21.0
May,	1.85	0.11	5.8
June,	2.21	0.04	1.7
July	2.28	0.04	1.8
August,	2.42	0.03	1.4
September,	2.64	0.37	13.9
October,	2.82	1.40	49.5
November,	3.83	3.26	84.9
December,	1.64	1.80	110.0

The filtration from April to September is very small—practically nothing; but during those months we have 12.67 inches of rain—that is, we have two inches a month for evaporation besides the quantity in the earth on the 1st day of April. From October to March we have 10.39 inches filtered out of 13.95 inches, the whole fall. "Of this winter portion of 10.39 we must allow at least six inches for floods running away at the time of the rain,* and then we have only 4.39 inches left for the supply of rivers and wells." (Breadmore, p. 34.)

It is calculated in England that the ordinary summer run of streams does not exceed ten cubic feet per minute per square mile, and that the average for the whole year due to springs and ordinary rains is twenty feet per minute per square mile exclusive of floods, and assuming no very wet or high mountain districts (Breadmore, p. 34), which is equal to about four inches over the whole surface. If we add to this the six inches that are supposed to run off in freshets, we have ten inches discharged in the course of the year by the streams. The whole filtration was 11.29 inches, 10.39 in the winter, and 90 in the summer. The remainder, 1.29 inches, is susposed to be consumed by wells and

* The greatest fall of water in Ireland is said by Dyer to be in twenty-four hours—one and a half inches—and that one-third or a half an inch of it enters the rivers in the same space of time. (P. 17.)

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excessive evaporation from marshes and pools, from which the discharge is obstructed; by animals, and in various other ways. These calculations were made from experiments running through eight years, in which the average fall of water was only 26.61 inches per annum. When the results derived from them are applied to our average fall of 35.28 inches, we have for the water that constitutes the summer flow of our streams 13.25 cubic feet per minute per mile of the country drained, and for the average annual flow exclusive of freshets 26.50 cubic feet per mile per minute. That is to say of the 35.28 inches of water that falls in the course of the year 5.30 run away in the streams as the average annual flow, 7.95 run away in the freshets, and 20.47 evaporate from the earth's surface, leaving 1.56 for consumption in various ways. In the whole year the drainage is nearly equal to one cubic foot per second per square mile (.976) no allowance being made for the 1.56 inches which is lost as before stated. These calculations are based upon English experiments. Mr. McAlpine, late State engineer and surveyor, in making his calculations for supplying the city of Albany with water (*page 22 of his report to the Water Commissioners*) takes 45 per cent of the fall as available for the use of the city. Mr. Henry Tracy, in his Report to the Canal Board of 1849, page 17, gives the results of the investigations in the valleys of Madison Brook, in Madison county, and of Long Pond, near Boston, Mass., as follows:

Year.	Name of valley.	Fall of rain and snow in valley.	Water ran off in inches.	Evaporation from surface of ground.	Ratio of drainage.
1835,..	Madison Brook,.	35.26	15 83	19.43	0.449
1837,..	Long Pond,....	26.65	11.70	14.95	0.439
1838,..	do.	38.11	16.62	21.49	0.436
					Mean. 0.441

Madison Brook drains 6,000 acres, and Long Pond 11,400 acres. Mr. Tracy makes the following comment on this table: "It appears that the evaporation from the surface of the ground in the valley of Long Pond was about 44 per cent more in 1838 than it was in 1837, while the ratio of the drainage differed less than one per cent the same years."

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Dr. Hale states the evaporation from water surface at Boston to be 56 inches in a year. (Senate Doc. No. 70 for 1853.)

The following table contains the results arrived at by Mr. Coffin at Ogdensburgh, and Mr. Conkey at Syracuse, in regard to the evaporation from water surface:

	Coffin at Ogdensburgh in 1838.		Conkey at Syracuse in 1852.	
	Rain.	Evaporation.	Rain.	Evaporation.
January,	2.36	1.652	3.673	0.665
February,	0.97	0.817	1.307	1.489
March,	1 18	2.067	3.234	2.239
April,	0.40	1.625	3.524	3.421
May,	4.81	7.100	4.491	7.309
June,	3.57	6.745	3.773	7.600
July,	1.88	7.788	2.887	9.079
August,	2.55	5.415	2.724	6.854
September,	1.01	7.400	2.774	5.334
October,	2.73	3.948	4.620	3.022
November,	2.07	3.659	4.354	1.325
December,	1.08	1.146	4.112	1.863
	24.61	49.362	41.473	50.200

The annual fall of water in England is stated by Mr. Dalton to be 32 inches. In this State it is 35.28 inches. The evaporation from water surface in England is put by Mr. Dalton at 44.43 inches. The fall is less, and the evaporation is less in England than here, and the fall in each case bears the same proportion to the evaporation, very nearly; and it appears that the experiments made on the two sides of the Ocean result in giving very nearly the same percentage of drainage. In England it is 42.4 per cent, in this State it is 44.1. In England the experiments were made on a limited scale compared with ours, but the results agree so well that great confidence may safely be placed in them.

In hilly and hard countries more water will run off in freshets, and in level tenacious soils more will evaporate; but in the absence of experiments made on the ground, the data here furnished will be found useful in making calculations for supplying cities

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with water or for calculations for mill powers, proper allowance being made for the peculiar character of the country.*

In a country thoroughly underdrained to the depth of three feet, and deeply subsoiled, neither droughts or excessive rains are much feared by the cultivator; a large proportion of the water that falls is treasured up in his subterranean reservoirs, and any excess is carried off by his drains. Some districts of country have a soft, mellow soil, just clay enough, and just sand enough to give it proper consistency, and then this soil underdrained perfectly by an open gravel or shelly rock.

This is the natural condition of most of that part of this State that has been denominated by the geologists the "Onondaga salt group." It is a narrow strip of land, but little observed east of Madison

*As an example of the applications of the facts and principles herein stated, the plans that have been adopted for draining the Cayuga marshes may be given.

The Seneca river runs through the marshes, and has no considerable rapid or fall in it above a place known as Jack's Reefs. There are various bars in the bed of the river, but most of the distance from Cayuga lake (which is at the upper end of the marshes) the wate is from ten to forty-three feet deep, moving with a current scarcely perceptible. The marshes are themselves deposits of mud mixed with shells, sand, and vegetable matter, and long ago Cayuga lake extended over their whole surface, and in very high water it does so now.

The area of the country drained by the Seneca river above Jack's Reefs equals two thousand seven hundred square miles. Of this area it is computed that three hundred and fifty miles is made up of lakes and other water surface, constituting vast reservoirs into which the freshets run and are treasured up, so that the flow of the stream that drains them is very uniform.

The surface of water evaporates about fifteen inches more than falls from the clouds on it, and as before shown, that is just about the amount of the drainage of an equal area of land. So the 350 square miles of water evaporate the rains and snows that fall on 700; this being deducted from the whole area drained, leaves 2,000 square miles, the drainage of which flows into the river, which being equal to a cubic foot per second per square mile, gives the average flow of the stream to be 2,000 cubic feet per second at Jack's Reefs. The highest freshet of the river was determined by a line of high water marks for a distance of fourteen miles, and from the declivity, the rate or velocity being calculated and multiplied by the cross section, gave 9,156 cubic feet per second. Another calculation, based upon gauging the stream, and made by another engineer, gave 10,000 cubic feet per second. The summer flow was determined by gauging the river, at a fraction less than 1,400 cubic feet per second.

For the purpose of reclaiming the marshes it was judged necessary to reduce the surface of the river at Jack's Reefs four feet in low water, and provide for the running off of the freshets, so that they would not rise higher than the low water marks of the river before the improvements were made.

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county. It widens westward, and crosses the Niagara river at Grand Island. Most of this soil is drained just enough; but in some cases the shale comes so near to the top of the ground that the drainage is excessive, until by deep cultivation the underlying soft rock has been brought to the action of the frosts and atmosphere, and thus disintegrated and softened down and made soil. In other cases—as saucer-shaped valleys, where the soil has washed from the surrounding hill sides—it is so deep over the shale, and made tenacious of water by being packed tight in the process of transportation and deposit, that draining is necessary. In some localities clay predominates, so as to require subsoiling and draining, but these are the exceptions. In many other parts of the State there are soils that neither require underdraining or subsoil plowing, and the owners of these districts should be careful not to be carried off the balance of their own good judgment by the reports they see of the great utility of underdraining in Seneca county and other places, where a tenacious soil is underlaid by a tenacious rock or clay. Enough has been said in the previous pages of this article to show the utility of deep cultivation and thorough draining, where it is demanded by the nature of the soil, and it was thought equally necessary to warn the reader against the folly of laying out money in those cases where it would do no good.

A soil underlaid by clay that comes near the surface generally is much improved by under-draining, particularly for growing grain. After such land has been drained there is less evaporation from the surface, and more filtration into the ditches. Instances have occurred where the thorough draining of a few acres has resulted in furnishing an abundant supply of water to farms lower down the slope, for stock, where before no water run except in times of freshets. In my own neighborhood, six or seven acres of springy, wet soil, was thoroughly ditched, and thereby a constant supply of water was furnished, running in an open ditch for perhaps half a mile, for the first and second farms below the farm owned by the man who went to the expense of concentrating the water in his blind ditches on the lower line of his farm. The farm next above the land drained had springs sufficient to supply

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stock with water before the work was done—but afterwards these springs became dry, or rather they found channels deeper down in the ground through which they flowed.

Some soils do not appear to suffer from an excessive supply of water, when first put under cultivation, that afterwards require draining. This was the case in some parts of Onondaga county. When the soil was first put under the plow, it was lighter and more porous than it was after repeated cultivation—just as earth, by being moved from a cutting, in the construction of a road, to an embankment loses a part of its bulk; so that it is computed by engineers that it takes ten yards of earth, measured in a cutting, to make nine yards after it has settled in an embankment. Whoever has been engaged in the construction of post fences has observed this tendency of earth to pack together when it is moved. It is commonly said that a post can be put in the hole, and then all the earth that was dug out of it can be put in too. Perhaps another reason that these soils when new are dry enough, and afterwards require draining, is that the cavities and water courses produced by the roots of trees are filled up by cultivation.

In examining a district of country, with a view of its being drained of surplus water, it is necessary to inquire into the stratification of the soil—for much will depend on the character of the different strata, and their "dip." It sometimes happens that a tenacious soil is underlaid by an open one, and that deep cuttings may be necessary to carry off the water, by the ordinary method of leading it in artificial channels to some stream. In this case, a well sunk deep into the open rock or gravel below, will, at little cost, reclaim the before useless marsh. In other cases the surface is made of a clay, up through which the water is forced by pressure, communicated through beds of gravel lying under the clay, and extending to the hills perhaps far off. If this covering of clay is some feet thick, ditches cut in the usual way (though they may be very near each other) will fail to make the land dry; but a well, sunk through the clay to the gravel, will allow the water to all rise up in one place, and from thence it may be carried off in a ditch. Thus, perhaps, a piece of land of some acres

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in extent, may be freed from the injurious effects of many small springs, and one large artificial spring give vent to all the water.

The dip of the strata must be observed, in order to so locate the drains as to reach the water at the proper depth; and in those cases where the dip is in the direction opposite the slope of the surface, the strata constantly out crop, and the proper location of the drains is a matter requiring nice judgment and skill.

In many instances great expense has been incurred, and the whole outlay lost, in the attempt to drain lands involving some of the peculiarities just stated—when, if proper skill had been applied, with a comparatively small sum of money, the desired object would have been accomplished.

The first thing to be taken into consideration, in fixing upon a plan of operations, is to determine the sources of the too abundant water. Is it due entirely to the rains and snows that fall on the land itself? This may be so. For if the soil is thin and underlaid by a stratum of impervious rock or clay, fifteen inches more water will fall on it in the course of a year than will evaporate from its surface; and if there is no chance for the water to percolate through the sub-soil, and if the surface is level, or perhaps saucer shaped, it cannot run off, then certainly it will be useless for farming purposes, and will be either a marsh or a pond during the whole year. Such a piece of land may be drained with certainty, if an outlet can be found into which to discharge the water, and the owner may easily make his estimate of cost and decide upon his plans, and not have his expectations disappointed in the end. This is the simplest case that arises. Perhaps a hill side is wet in some places and dry in others. These wet and dry places are so situated in regard to each other, that to the eye unskilled in such matters they appear to indicate nothing but the necessity of a drain from each of them, while in fact such drains would in reality do little or no good. The water may all come from one spring, and these wet places are merely the points by which its confined waters reach the surface through comparatively open portions of the soil. One drain leading from the source would work a radical cure. The difficulty is in finding the sub-

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terranean source, and in that the most skillful may be at fault. But careful observations in regard to formation of the strata, and the use of the spirit level, with perhaps a few borings, may find it, and in most cases will.

It may be that one stratum bears water, and is over and underlaid by clay, or some other water-tight material. A ditch at the proper place will collect all the water of the wet stratum, and carry it off and make the land dry. This ditch must perhaps be dug some rods higher up the hill side than the places at which the water shows itself.

The science of draining is *underrated.*

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AGRICULTURE—THE YOUNG MAN IN RELATION TO IT.*

BY W. P. PRENTICE, OF ALBANY.

[Prize Essay—Gold medal, $25.]

The charms of an agricultural life have ever been sufficient to induce many to embrace its pursuits. Its connection with the other employments of man as the fountain head for the supply of all his wants, its contrast to commerce, where ninety-seven out of every hundred who venture must fail; or with the professions, where weary years of wasting study, and struggles also, against over-bearing rank, must be past before one begins to live; its ease and contentment, its health and quiet, and sober pleasure, place it prominently before the eyes of all.

Even many of those, who, in youth, seemed insensible to its attractions, look forward to it as to a haven at the end of a bustling life; and many a young man, as he walks the dusty street on his daily toil, builds high in air his villa or his farm, looks over fields of waving grain, and in the bleatings and cries of flocks and herds recognizes those entrusted to his care. How much happier he to whom each day renews such pleasures, and to whom his estate is "no castle in Spain."

The liberally educated young man may see in agriculture a high vocation. Here there is an opportunity for his mind to develope as well as his physical strength. It is emphatically a liberal profession—liberal in its requirements, in the difficulties it presents to science for solution, and in the success which alone attends well directed attention. It is liberal in the aim and tendency of the whole work. The philanthropic may enter it with the same broad views as the medical profession. Let there be provided a profitable substitute for opium or tobacco, let there be added

* In order to draw the attention of the young men of the State to the subject of Agriculture as a pursuit, the above premium was offered for an approved essay from a Student of the State in any public institution. The annexed essay was presented and examined, (the author's name not having been disclosed.) and recommended for a premium—and it was ascertained that the author was W. P. Prentice of Albany, a young man now *pursuing* his educational course.

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still farther supplies of necessities, and pure pleasures, then will there be less need of the physician. In these store houses there never can be too many, nor can there be too much. Let the farmer understand that in the proper cultivation of the soil there lurks a remedy for and the prevention of famine; let him see his influence on the country's prosperity and wealth; how that in the economical use of his timber lands he may prevent suffering; that the climate of the country is in his hands, and that he must thin with care the wooded summits of his mountains.

It is through the farmer that, by the diffusion of knowledge and increase of taste, we reach the multitude of the country, and it is broad views which will lead him to enrich, and not impoverish his soil, the birthright of coming generations.

It is a liberal profession in its influences on the minds of its followers. Look back to olden time; then was the golden age when the gods on earth tended their flocks; the silver still, when agriculture was the chief occupation among men.

How sublime is the character of Abraham praying amidst his thousand herds; see how each month the Persian kings, while in all their glory, sat down at the table of the husbandman to show their sympathy. But what need to enumerate its great men emblazoned as the art is on the page of the poet and historian. Go with Horace to his little farm, or read with Virgil how to turn the joyful seasons to account; listen to Pliny or Columella, or how Agricola first subdued the Britons and their soil; or see how in our own day kings and statesmen lay aside their robes of office, delighting in the plain suit of the farmer.

It unites health and pleasure. The green fields and fresh air have made a Thompson, a Milton and a Newton; they can not make a Keats or a Byron; and many a poet has drank his first draught of inspiration, listening to the lark as, in his labors, he brushed the dew from off the grass, or as he followed the quiet oxen with his hand to the plow. Here there is no all-absorbing, corroding cares, no vitiating excitement, no grinding mould for man; he finds a lesson in the wing of the insect and in the growing grain; he reads out of nature as well as books. As a che-

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mist he may enter her laboratory and explore her treasures; as a philosopher he may read her laws and expound her riddles in the fields before him; as a man and a christian he must feel the daily influence of beauty around him and lift his heart in gratitude for the shower and sunshine, the budding fruits and harvest home; and when in winter the snow has wrapped in its soft mantle his coming wheat, his cattle are snug in the barn, and he sits at the ruddy fire within, careless of the storms which causes the poor citizen to groan; he has ample leisure for study and thought.

> "All nature feels the renovating force
> Of winter, only to the thoughtless eye
> In ruin seen. The frost contracted globe
> Draws in abundant vegetable soul,
> And gathers vigor for the coming year;
> A stronger glow sits on the lively cheek
> Of ruddy fire, and luculent along
> The purer rivers flow. Their sullen deeps
> Transparent open to the shepherd's gaze,
> And murmur hoarser at the fixing frost."

Thus for him each season has its profits and pleasures; he knows that his fields are working while he rests or sleeps. Where may he better study the philosophy of life, away from the city and the crowd, free from the seductions of enervating pleasure; devoid of the cares that attend on false ambition; with work upon the hands sufficient that he may not be a drone in community; art and nature happily combining to make him an independent man. His books can amply solace him for whatever he may have lost; and here may he live in daily communion with the best parts of the best men, who inheriting some faults of their fellows, unfortunately have not always followed out in life the theories of their thoughts.

If others find much of profit in this pursuit, much more profitable should it be for him. His path is more plainly marked, and he never need run on at random; he can best investigate and learn; he can best avail himself of circumstances, and adapt means to an end; he, in a word, can have a higher aim. If others find much of happiness here, much more as of greater resources should there be for him; he seeks not to secure for himself the best management of a farm. Here are no patents or copyrights,

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discoveries are gifts in common from Mother Ceres to her children, and farmers constitute a strong brotherhood.

It is the educated farmer who calls for the reaping machine, for improvements in the plow; it is he who breaks the clogs of old superstition, and leads the way in every direction of enterprize and reform. It is not the end of the farmer to set a bountiful table, or to provide a comfortable house; and as one well cultivates his few acres he may feel that he is doing good in a broad way, not alone to himself but to others.

The plow, the loom and the anvil do they not go hand in hand in advancing man? Yet, how is agriculture neglected? "Agriculture is the mother of the arts" says Xenophon, and the mother loses her strength while she pampers her overgrown children. Where are her schools and colleges, and professors? It is not here that, for the first time, a want has been felt; every nation, as it has perceived the first exhaustion of its original stores, has looked to science and general knowledge for aid. Man feels guilty in squandering nature's good gifts.

In the sixteenth century, the author of the "Legacy" left to his countrymen in England a systematic plan of education. France now feels the necessity of it, and her three schools are held up as models to the world.

Consider the narrow compass of one man's exertion, the time that must necessarily elapse before he can become convinced of the failure or success of any experiment, the unseen obstacles which oppose him at every step,—manures, for example, often working contrary to all theory,—and hence it is that so many exclaim against book farming, willing to go on in the way of their fathers, if, by adhering to their faults, they may still attain their partial success.

But agriculture is an art, and "every art is founded on some science." Of agricultural science we have much in our day; and call to mind the changes which agricultural societies have wrought by the diffusion of opinion and discussion of experiment, leading the farmer to look abroad from his little sphere into the great world. Let knowledge, then, be general, and the pre-

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cepts of agriculture come from the lips of those qualified by years of study to teach. As the time draws near for the young man to leave his "alma mater," and fix upon his route for life's journey, he must feel that his course so far has been but a preparation for study, even.

It now remains for him to devote himself to one pursuit—and his mind, expanded and refined by reading and study, enables him to work harder and better. In a practical knowledge of the difficulties which he must encounter, he is inferior to him who has labored there, with his hands alone, for years before; but if common sense, which used to be deemed the only requisite for agriculture, when more than ordinary knowledge was a tempting of providence, be but the use of experience, and the so-called intuition of practical men but a rapid review of antecedents, without the power of retracing the steps to a conclusion, as Stewart and others say—then, as science enables him to enlarge his experiments, and as education gives him the power to lay by his reasoning, this common sense will be superior to that of the mere practician, who is almost compelled to tread in the steps and obey the beck of those who preceded him.

The same advantages which he would carry elsewhere, he still preserves in agriculture. He may now more clearly estimate its importance, and see what he must do. Yet there is need of an agricultural, as well as other education. He has learnt the alphabet of the sciences—he must now go still further, and then learn to apply them. Difficulties will not vanish by throwing at them his dictionary of knowledge. Everywhere they are real, and we can only seek to avoid them. Experiment, which Bacon deemed the basis of every system, is certainly that of agricultural philosophy; it is material, and here only from an observation of particulars can we ascend to generals. Theory is necessary, in order that experiment may not be wasted; this science gives, and then we come to the trial of our but feeble knowledge, that we may see if it be practical. How can we make a fair analysis of the soil from a few particles of the surface only? How prescribe manures, the best rotation of crops, the times for sowing or reaping?

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In our country agriculture is endeared to us by earliest association. Each has some personal recollection of the farm. To it we trace the foundation of our country's wealth, and see liberty itself guaranteed by the number of freeholds and small estates. Here none need complain of taxes or rents; here are markets, too; and the dividends declared on farming stocks before are safe prophecies for the future. What a field is here for the youthful statesman to study for his future greatness. What a field of political economy is laid out before him.

The United States, able to sustain two hundred millions with the same ease that she now sustains her moiety—her cotton crops able to be trebled—her wheat and corn diminishing in ratio with the acres of new land and her population—her exports raw material—her imports manufactured articles. Belgium, prospering with her three hundred and sixty-six to the square mile. Flanders, where seven acres is a large farm. England, built up by the farmer, and where science alone sustains him. Yet here in our own State, the pioneer in this land of this strong means of civilization, which has spent eight millions more than any other in improvements of implements, and such instruction which yields to the country one-quarter of the butter, and one-half of the cheese, besides a large proportion of other produce, of twelve millions improved acres, but one million grows richer year by year; three millions, in the hands of observers and practical men, just holds its own—while the rest is retrogading.

Lands which once gave thirty and forty bushels of wheat, now average from twelve to twenty, and in the whole State the number of live stock has decreased, rather than kept pace with the number of inhabitants. The lands already lost by gradual deterioration will cost three dollars an acre in restoration; and thus he may see how that farmers of ancient days in a life time, in diminishing the value of their lands one-half, by reaping where they had not sown, have kept their children poor. He may look forward to the time, soon coming, when speculators will not have new lands to waste, and the economy of raising crops on good

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land will be too plain to be overlooked; and such the statistics of the New-York and Illinois wheat crops, as compared, have already shown, by a decrease of twenty per cent in cost of raising. It is by such glaring facts set before them that the farmers of the Mohawk and Wabash valleys now mourn the surplus produce which they, years ago, cast with their manures into the river.

It is for other countries that we thus coin the soil, while there is no adequate supply of gold at the mint. The legend of "El Dorado" to all but the farmer is exploded. There is need of broad views and high-minded men—such as make the merchant prince. And see what he has done. Such make the true gentleman farmer. It is not capital of wealth, but capital of mind.

And why are lawyers and politicians, who do not belong to the farming community, so often called to represent this great body of our people, if there be not here a want felt?

It is to the farmers that internal improvements, that increase of facilities for commerce, that treaties for peace and for war, have especial concern. The greatest internal improvements for the whole country would be an impetus given to agriculture, and we have learned farmers and true farmer statesmen; not those alone who at election time avail themselves of Cato's Criticism, "to praise a man is to call him a good husbandman;" but those who, by the labors of their heads and hands, have deserved the support they receive. Their residences are model farms; their influence we see in our improved cattle, and in the advantageous exchange of agricultural knowledge with other countries. The name of one patriot is inscribed on the plow, and the shades of others we worship beneath their own forest trees and in the midst of their broad acres.

Thus have great men thought they best benefited their country. Thus are there, worthy examples for liberally educated young men. And whether they seek here a safe investment for their capital, or are actuated by higher motives, they may find in the accomplishment of their end an ample reward for all effort.

It is a field for study—a field for ambition.

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Whilst the farmer prepares himself to become a professor, if you please, as well as the most able practician among his brethren, in those moments of relaxation when he turns with instinctive pleasure to the words of some ancient sage who early guided him, and when he feels that his education has no money value, let him devote a portion of his time to the acquisition of those modern tongues which are now becoming domesticated with us. Here his school-boy Greek and Latin will be an efficient aid, not only to open new and wide fields of thought, but to enable him to fulfill what he as a patriot and an American may conceive to be his duty—to receive with open hands, and to point out the paths to those coming to fill up the spaces here, as the forests of sturdy oak and pine spring up wherever there may be an opening, and who, like the latter, growing gradually to usefulness, should be moulded by arts of peace rather than of war.

They bring noble elements to form a part in that great whole, the American character, which looks for its ancestral virtues to every part of the known and old world. Those airy theories and social bubbles have their foundation in true thought, and upon their ruins may be built the nobler edifice of true democracy. They are in a great measure the farmer's brethren. Their influence he feels, in the market, in our products, in the administration of our government. There are hints to be gained from these Germans, and Swedes, and French. We as well as they have much to learn.

In his preparation the student might do well to devote himself principally to one branch of his pursuit, and his taste may afterwards lead to the selection of a farm adapted to it. The experience of farmers, as well as of old maxim makers, has proved that man can do but one thing well. The economy in seeking a market, of conveniences in buildings, &c., influence them, and thus, though knowledge should be general, yet the most advantageous knowledge of particulars can be gained but in one direction. Chemistry, geology and entomology have more to do with the raising of crops, natural history and anatomy with that of stock.

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This is but the carrying into practice those principles in political economy of "division of labor," concerning which the writers on that science have so much to say; and when we consider its importance in the mechanical arts, and the minute division there, with the no more contracted range of agricultural labor, we may truly wonder that its advantages have not been more fully appreciated by the farmer.

The young farmer will find enough to learn in preparation for any branch, and satisfying himself of its policy and calculating facilities, so that no effort need be wasted, will find an open field in every direction. He wishes often to live patriarchally amidst his flocks, with his tribe alone around him, depending wholly on his fields for subsistence. He does not readily appreciate his advantages in being able to adapt himself to the wants of community, changing his course with these, principally producing that for which the highest price is paid, and thus in buying for his other necessities, saving a double per cent—that of his commodity above par, that of others below. There is no need of being Quixotic in his nobility.

It seems strange that no more attention has been paid to the sheep culture in this country, with our facilities of climate and soil. The pride that other nations have taken in their flocks, the increasing markets here, with the improvements in the breeds themselves, seem to recommend it. Their value does not simply depend upon the interest which they yearly pay on their principal—in wool and mutton, which, since the average weight of both has been greatly increased, is very large—but it has been deemed a profitable experiment to keep them on farms devoted especially to grain, and here for the sake of their manure. According to the statistics of one gentleman, one hundred, well littered, produce forty loads of great value to the soil, and the same gentleman adds that they may be profitably kept on wheat farms at the rate of one to an acre. The experiments made in England of renovating land by feeding turnips on the field to sheep, and then allowing it to lie fallow one year, have been successful, the cost of the feed being but four cents a bushel. The average quantity of land proportioned to a cow in the keeping of a dairy farm

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seems to be from three and a half to four acres, while sheep are placed two to an acre, and with sheep-shearing—from three and a half to eight pounds of wool, as flocks have been known to do—and the fact, too, that experiments in Saxony and here have tended to show that the fine-wooled make the best mutton, with the economy, in the care which they require and in the cost of buildings, taking also into account the comparative risks in lambs and calves, and the prices these will obtain, this branch of husbandry would seem to possess advantages superior to most others.

The farmer has been too apt to give evidence of discouraging experiment by not looking forward far enough. In this department, blood and cultivation, as elsewhere, tell. It is an old story of the times as far back as General Washington, that in his absence the value of his sheep declined one half.

Sheep should be adapted as cattle are selected, for specific purposes. For the shambles the farmer may find those that weigh sixty, seventy and more pounds to the quarter; for wool alone he should follow the dicta of the manufacturer, seeking for softness and fineness and body, and that which will give the best finish. The experiments now making with the Merinos have satisfied many; the success in the cultivation of the Cotswold and Leicester sheep, and also the avidity with which the Silesian were sought at the last Vermont fair, is additional testimony of its importance. The fleece of the ram from the last-named flock weighed thirteen pounds, and was sold for thirty-five cents a pound, unwashed. Such are the arguments that may convince farmers that they will be well paid for all exertion in this direction.

The agriculturist should clearly see his relation to the merchant. It is but a partnership for loss and gain. Let him make a market for American goods, and prevent our money from enriching other countries; then the merchant will call on the manufacturer, who again will call on the farmer. Thus may native articles supersede foreign; thus may there be a strong argument for "revenue tariff," and a substitute be provided for "ad valo-

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rem" duties, and this the farmers of the West have already in some measure done.

Having made ready for his first practical effort, which will be the selection and settlement of his farm, he will see the necessity for a plain and economical system. But his aim is not gold alone. Agriculture is a fine art as well as a profession, therefore let him strive to unite in his labors the useful and the beautiful. Pomona addresses not his eye or his taste alone as she reaches to him the rosy-cheeked apple; Ceres gathers new dignity from the graceful wheat, evidence of her beauty and virtue; the tree, that "living poem" of the poet's dream, is another testimony of the unity which nature observes in these.

There is not a statue of two forms pointing to different paths, "*utile et dulce*," but one and the same face seen from different directions. Let him then make his work itself beautiful by the motives actuating him, and let him surround himself with the associations which conduce to this. Let him in the position of his house secure those landscapes and natural scenes, which no painter ever rivalled; let him indulge at full freedom in shade trees, for the preservation of his health and the gratification of his eye. When worn with care and weary, the tiny flower will work on him its influence, and soon will he reverence the elm and the oak whose shadows lie on his dwelling.

"The trees that round a temple whisper become soon dear as the temple's self."

And the influence of such cultivation who can tell? It worketh silently as doth pure charity. Its effect in making the homestead attractive may be traced in the village where there is but one such habitation—and the educated man has something to do in thus directing the attention of his neighbors—the running vine, the blossoming hedge instead of the uncouth fence. Let New-Yorkers write in blooming orange and buckthorn their Downing's name, whose hand penned the lines of their houses, and may be traced in each lawn. Here may it well content one

"At ease in these gay plains to dwell,
Where hedge rows spread a verdant screen,
And spires and forests intervene,
And the neat cottages peep between."

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Never need he sacrifice to utility in his vista. Unsightly objects may be hidden by clumps of trees, and the clambering vine round off all excrescences, thus subduing the whole. His fruit trees may be a source of refined pleasure which money alone cannot purchase, but the care of the poorest. Let every spot of ground be well occupied. The experiment is now making whether three acres may not give the profits of one hundred, as ordinarily cultivated. The shingle "manor house" of the aristocratic Yankee, who journeys west to buy an estate which he is unable to hire servants to even walk, should be abolished, and in its place everything be neat and compact, yet commodious. We know not yet what the earth can do. Even the rockiest and most sterile soil can be made productive by the growth of forest trees, a crop encouraged in France and other countries.

In moments of leisure, too, many a comfortable addition to the income may be pleasantly made by attention to those things which are apt to be looked upon as trifles. The fruit culture, the production of vegetables, of bulbs and of flowers, even now as a source of profit attract attention, and the taper fingers of the New England countrywomen may emulate the spinning labors of their mothers in the preparation of silk, a more congenial task than the labor of the factories.

Such experiments Colman also recommends to the families of those too often "poor shepherds"—country clergymen; and in such way may the country realize from small beginnings the benefits for which its statesmen long ago, by means of bounties, endeavored to prepare them.

The educated farmer must keep to the *utile*, and bear in mind the essentials of his profession. His danger perhaps lies on the other side. Let him, if he please, refine his work, but let him also be careful that he does not whittle away his support in disputation. Everything with him should answer an intended purpose, and that as closely as possible—his buildings, his tools and his stock.

He has a balance sheet to attend to as well as the merchant, and why should it not be as strictly accurate. He may know

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what every bushel of wheat costs, what every pound of flesh in fattening animals. Every field should be registered, every workman be a distinct farm engine in tools and in work, thus may he sooner know what he can do, and his experiments sooner give him great practical knowledge.

Such a system the late Hon. Mr. Delafield left behind him, to American young men, as a testimony of his worth, and now the farmers mourn for him, as did the money men once distinguished as he was in every pursuit. A true gentleman farmer, cultivated, thorough and scientific, his farm has not only been a fortune to his family but an heritage to the State.

What a change would result from such a method as this. Ask in the country the three first men you meet the cost of any operation, and often they will be found to differ an hundred and fifty per cent. The story is common of those who may better give away their cattle than attempt to fatten, and few can tell what one animal will cost in its keeping. How loose then must be general ideas as to qualities and necessities. The thorough man will do everything in the best possible way, having in each case his intention clearly laid out before him. There will be reasoning beforehand on every step, and no blind speculation. He will attend personally without thought of weariness to his operations. It should be one of the pleasures of his life, and considered as an advantage which he possesses over some others that he may thus interest himself. It may be a source of incalculable profit to him as he may thus do away with that imperceptible wasting of time and labor which is an affliction to so many. If he work by the heads and hands of others what good has his education done him unless his servants be educated also to understand him? Many of his plans can appear only in their true force to himself, and unless their detail be carried out under his supervision he cannot be sure of success. Now, in draining he may save twenty per cent, yet it is not sufficient to point out by means of the spirit level the place and direction for a trench to be dug, he must have a knowledge of the substrata and other particulars which practical science will give, otherwise he will often be misled.

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Often through observation he may improve the natural facilities of his place by new methods, as did Judge Buel his sandy soil by adding clay and thus advancing it in value one hundred per cent. Such a man will despise the narrow economy which actuates so many, who will not look into the future. He will realize that the best material is often the cheapest; he will see that it is so in his buildings, in his seeds and implements, and in his stock.

What monuments of weakness are the crazy, inconvenient old barns in the country, the loss they occasion would be better appreciated if such were the plan of a house, and the punishment of the builders should be to live in them. In the strictly useful part of his farm he will be led by no dictates of fashion or fancy. Though science should mould for him the plow, yet should it be plain and serviceable, nor should he indulge in complicated labor saving machines, which are to work by some magic that he cannot understand. He will see that the rules of nature and of art are simple. Perceiving the dignity of his profession he will endeavor to maintain it; nor will he be turned aside from its true objects by matters unconnected with these. Why should farmers ever raise horses for speed? this is the jockey's business. For market the heavier coach horse is said to be most profitable, and certainly for work another form is needed than the racer's light bones and sinews.

Why should farmers fatten for show, animals of coarse frame whose virtues shall lie but skin deep? Such an animal the true farmer will get rid of as quickly as of a poor machine. He will see the advantages of different breeds in their different capacities, and select from each according to his purpose. "Blood tells even in the plough," said John Randolph, and how has that excellence been attained, but in breeding, with an end perpetuating virtues and eradicating faults, and such a plan let the farmer follow. Beauty in cattle is economical, for it denotes fitness and little waste, so there is a double pleasure in the exhibition of fine animals, and whosoever improves them does his country a service.

In the care of his animals humanity accords with economy, that they may be well sheltered and well fed; even for fineness of

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wool the manufacturer prefers such treatment of sheep. In the arrangement of his barns he will look to this, and also that by the conveniences of pits and cellars he may preserve the strength of his manure, a most important part of his capital. He will also be economical in its use, understanding where there may be a deficiency, and supplying just that deficiency without wasting other material: thus, "five or six bushels of bone dust will supply the phosphoric acid taken up by sixty bushels of wheat" where there may be no need of the other elements in compost manure, of which this is but a small part. Nor will he be surprised if, after using one manure for a series of crops, he may find a falling off in other respects than that which he has supplied. How few farmers understand that lime is an exciting rather than an enriching manure, but expect it to work continued miracles while in fact it may be their land is drying up. It is in this department of his profession that the advantages of the liberally-educated farmer particularly appear, since by analyzing into its component parts that which he wishes to produce, and keeping up a supply for these, his land will remain fertile and continuously productive. The thorough man in his very first step, the laying out of his farm, will pay attention to seeming trifles, knowing their importance in aggregate amount. Here, too, will he have a systematic plan; his steps will be counted in all the paths of his business; the geometrical form even of his fields is of importance in the saving of fence. The square is recommended, and thus may this smaller city be modelled on the thought of the great Quaker. The farm house, like the State house as nearly as practicable in the center; the lane will be the middle street, and the barns and fields, the blocks and parks, while the farmer himself, at the head of the body politic, conscious of the claims of those depending on him, will so administer its laws as to be loved and obeyed by his subjects; thus presenting in his character a model for other governments. Here, then, with his mind essaying to reach those higher themes to which his associations may lead him—with employment sufficient for health and support, the patriot may see his children grow up good citizens, and himself be prepared to obey his country's call, if need be, respected in any situation.

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None but a man of character and virtue is worthy of a farmer's life; others desecrate the calling as would atheists astronomy. He alone can appreciate the picture of the life of our first parents, for it is the picture of the morning of his day.

> "Now, when as sacred light began to dawn
> In Eden on the humid flowers that breathed,
> Their morning incense, when all things that breathe,
> From the earth's great altar send up silent praise
> To the Creator, and his nostrils fill
> With grateful smell, forth came the human pair,
> And joined their vocal worship to the choir
> Of creatures wanting voice; that done, partake
> The season prime for sweetest sense and airs,
> Then commune now that day they best may ply
> Their growing work, for much their work outgrew
> The hands despatch of two gardenings so wide."

It remains for the farmer to paint again the garden of Eden; and though he will still suffer through Adam's transgression, procuring beauty only through his own pain; yet the reward of his labor is sure. "Seed time and harvest shall not cease," nor shall "he stand before mean men." "The king himself is served by the field."

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LEGISLATIVE AGRICULTURAL MEETING,

AT THE STATE AGRICULTURAL ROOMS, JANUARY 25, 1855.

Subject The Great Drought of 1854.

Hon. A. Osborn, of Watervliet, was appointed chairman.

Mr. B. P. Johnson, Secretary of the State Agricultural Society, remarked that the object of these meetings, which had been continued during the sessions of the Legislature, was free discussion and conversation on subjects relating to agriculture and the mechanic arts. They had been found of great interest to all; to those who attended, and to those who had read the proceedings when published. Farmers have here had the opportunity of expressing their views—of giving their experience; questions of importance, upon which men differ, have been discussed—and oftentimes many new and interesting facts have been developed; and the interests of the farmer and the mechanic, the great producing classes of our country, have been promoted.

The *Drought* of 1854, which has brought such serious disaster to our own State, and the country at large, is a matter worthy of examination. So far as we have authentic records, it is believed our whole country has never been visited with such a wide-spread and severe drought as that of the past season. It is a matter of deep interest to the farmer to ascertain if there is within his reach any available means by which such a dire calamity can be modified, if not wholly averted. It may be said, generally, that good farming in this, as in other cases, is one of the best remedies. Wherever thorough and systematic cultivation has been practiced —where the farm, in every respect, has been kept in first rate condition—the crops have suffered far less than upon those of an opposite character.

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It has been asserted that thorough drainage and deep tillage are entire preventives of the effects of the drought. Now, while no really intelligent, practical farmer, will assert that this is so, it may with truthfulness be affirmed, and the experience of the past season has abundantly proved, that thorough drainage, upon soils requiring it, has proved a very great relief to the farmer; and the crops upon such lands have been far better, generally, than those upon undrained lands in the same locality—and in many instances the increased crop has been sufficient to defray the expenses of the improvement in a single year. The testimony furnished from all portions of our State uniformly and almost without exception asserts that very great advantage has resulted from thorough drainage, and that the crops have been much more abundant. This was to have been expected, when the effect of drainage in dry as well as moist weather is considered—for while drainage relieves the earth of the surplus moisture not necessary or useful to the plants, it also in severe dry weather retains much longer the moisture, so as to be accessible to the vegetation. The experience of every farmer who has been familiar with the effects of drainage will corroborate this.

When the subject of drainage is urged upon our farmers, we are sometimes met with the objection that the expense is too great. This may be true in many cases; but the question for the farmer to consider is, whether the increased expense may not be justified by the valuable land reclaimed and the abundant crops secured, where, without this, nothing but unproductive and almost useless land is upon his hands. A few years since, I stated to a meeting like this the results of drainage upon a farm near Geneva, which had cost $25 per acre upon a single field. The first crop raised upon the land was indian corn, yielding 80 bushels per acre—the largest yield in the county—which amply remunerated the farmer for his outlay; this was followed by a crop of wheat, yielding 25 to 30 bushels per acre. A gentleman present, remarked that while new lands in the western States could be bought for ten shillings per acre, what farmer would ever think of paying $25 an acre for draining lands here.

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The answer to the gentleman was: What shall a farmer do who has upon his farm land of this description, costing him it might be $30 to $40 per acre, upon which he is paying taxes yearly, and receiving no adequate return. Shall he sell his farm on this account, and migrate to the cheap wild lands of the West, and there locate—it may be to find upon his farm lands needing drainage as well as those he had left behind? Or shall he not rather inquire may I not, by careful drainage, make this land, now worthless, or nearly so, the best of my farm, and secure a return from the first two or three crops that will repay the outlay, and for all time to come an abundant return? The decision of a discreet man in favor of the latter course could not be doubted; and even in a money point of view it would be far better for him to follow the dictates of good sense and good farming, than to follow the gentleman to the wild lands of the West. Such, we are happy to say, is the decision of many farmers in our State—and their numbers will be greatly increased, if we are not mistaken, by the fearful drought of the past season, which has led them to look favorably upon the results of thorough drainage.

Soon after the close of harvest, circulars were issued from the State Agricultural Rooms to gentlemen throughout the State, desiring information as to the extent of damage which had resulted from the drought to grain and leguminous root crops (excepting winter wheat, which had suffered mainly from the ravages of the wheat midge). Very full returns were received, comprising nearly three-fourths of the State, including the best grain growing localities. From these returns it is safe, I think, to say that a diminution of at least one-third of the crop of oats, indian corn, rye, barley, buckwheat, peas and beans, amounted at a low estimate to upwards of $20,000,000.

The farmers of our State have much to do to guard against the ordinary vicissitudes of our climate; but when is superadded to these such a drought as we have experienced, and the ravages of the *wheat midge*, it becomes a most important question to the farmer how he can best guard against them. Drainage and deep

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plowing, on soils that require them, are, it is believed, most salutary measures, that may be resorted to with confident assurances of benefit at all times, and of manifest relief in times such as we have just passed through. There can be no doubt, I think, of the benefit which we have derived where drainage has been adopted, and it is believed that much more might have been secured had more been done in this direction.

Wheat Midge.—In addition to the drought, the ravages of the wheat midge (*Cecidomyia tritici*) have been most severe. In almost every section of our State, where the wheat crop is grown, the ravages have been very extensive, especially with the white wheat, and from the returns received at the rooms it is believed that not to exceed half a crop will have been realized. The Mediterranean wheat, when early sown, has generally escaped; and though this is not a favorite variety with millers, it may be a question whether it had not better be cultivated than to run the hazard of such diminished crops as last season. As yet, no remedy has been discovered by which the ravages of the midge can be successfully arrested. The entomological survey which has been commenced during the past year by the Society, under the direction of that distinguished entomologist, Dr. Asa Fitch, it is hoped will shed some light on the subject. Should we be able but in part to avert the ravages of this insect, we shall accomplish a great good. It is hoped that the legislative appropriation will be continued, to enable Dr. Fitch to continue his investigations, for in a single season little comparatively can be accomplished. The report which is to be submitted to the Legislature of Dr. Fitch's labors will be full of interest, and we doubt not will convince our farmers, on its perusal in the Transactions, that never has an equal amount of money been expended by our State more beneficially for the interests of the farmer and the horticulturist than that devoted to this work.

The wheat crop of this State at the last United States census (1850) was 13,121,498 bushels, and upon the supposition that an equal number of acres were under cultivation in 1854, and the yield only the same, under favorable circumstances (though it is

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evident that the yield per acre would show a considerable increase had the season been favorable), the loss resulting from the ravages of the midge has been from 30 to 40 per cent. Estimating it, however, at one third, it will give at the average price of wheat—$2.15 per bushel—$9,403,012.85. Our farmers, it is gratifying to be assured, notwithstanding their severe losses in a single year—of nearly thirty millions of dollars—are still in a condition to be less affected by the severe monied pressure of the times than almost any other class of our citizens.

I will not dwell longer on this subject, but desire gentlemen present to give us their views in relation to the subject under discussion, and such other matters as they shall deem interesting.

The Hon. A. Z. McCarty, of Oswego, described the severity of the drought in his county. He confessed to a change of opinion in respect to the benefits to be derived from drainage. Heretofore, in reading the views of others, friends of this method, he had deemed their statements of the benefits to be derived as exaggerated—that the principal authority for the benefits of draining had been derived from England—that English writers wrote of what was best in a moist climate, and that it was not essential here. But he had now witnessed the good done by draining—by deep plowing—and that it had to a great extent obviated the evil effects of the drought. He now acted on his change of views, and his plow was used as deeply as the strength and capacity of his team could produce.

Mr. McC. alluded to the vast value of collecting reliable statistics on this subject. The vast amount of pecuniary loss reaches every class of our citizens. It is not merely the farmer who raises the grains, but the great transportation interest that has its business in their carriage to market. There is not so much work to be done. There was less hay—less grass—and the dairy suffered; it has become necessary to reduce the stock of cattle, and the tendency of this is to impoverish the land—the farm and the farmer. All these have been results of the disastrous drought of 1854.

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Mr. Woolworth (Principal of the State Normal School) bore his testimony to the value of a system of drainage. It was applicable to two kinds of soil—that which was low and swampy and that which lay on hill sides and hills. He had had admirable opportunity to witness its effect. There was near the village of Homer, in Cortland county, a barren and unsightly swamp of about eighteen acres. So unstable was the soil that it seemed to float on the water beneath it, and would hardly support the boys, who in summer attempted to make their way through it. This swamp fell into the hands of Mr. Barber, one of the Vice-Presidents of this Society. He was aware that the draining and clearing would be expensive, but was unwilling to permit his farm to be deformed by waste and unproductive land. He opened his drains, and the floating bog was soon converted into a firm bottom, over which he could drive his oxen. The growth of trees was removed, the brush and wild grass burned over, inorganic matter, from gravel banks which lay near, was brought on, and freely scattered over the surface, and a beautiful and productive meadow was soon the result. Mr. W. called the attention of the Hon. Mr. Dickinson of the Senate, who was present, to the fact he was relating, as Mr. D., when delivering the annual address before the Cortland County Agricultural Society, had noticed the land. (Mr. Dickinson assented to the statement of Mr. Woolworth as correct.) As illustrative of the effects of hill draining, Mr. Woolworth spoke of what he had seen on the farm of the Hon. Henry S. Randall, late Secretary of State. A field from which a late crop of grass was usually cut, but which continued wet and cold too late in spring for cultivation, was subjected to drainage. Its elevated situation, on a gently sloping declivity, permitted the water to be early and rapidly carried off; the heat which had been carried away by the slow evaporation of the water, was retained in the soil, and the land was early in the spring ready for the plow, which had before rarely penetrated the soil. On this field, as a consequence of the drainage, are now raised heavy crops of grain and corn.

Mr. W. had observed many other instances of the valuable effects of draining on the hills of Cortland county, and he had no doubt that under a thorough system, much of this land which is

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now valuable only for grazing, will yield abundant products under the plow.

B. V. French, Esq.; (of the Massachusetts Agricultural Board,) expressed his fears that the meadow would go back again unless the fertilizing matter was restored. These swamps were formed of the leaves of trees which had for ages accumulated there, and which were succeeded by aquatic plants, these died, and then small shrubs grew up, and in the processes of years gave place to others, and unless proper materials were deposited upon the land it might fail. Perhaps the inorganic matter brought on would be sufficient.

Mr. French remarked—Draining is not so much followed in Massachusetts as in New-York. People will adopt it slowly, but they will have to come to its general adoption. Farmers of small means look on with caution till they see its good effects; then they go in—some more readily than others. In 1836 there was a time of great distress in England, and the farmers in England petitioned Parliament for some relief. A committee was chosen to make an investigation in relation to the circumstances, and they made an able report. The English farmers gave a sad account; it was really distressing to read it. To make a clean job of it they sent to Scotland, and brought out good farmers. They sent for Mr. Smith—a celebrated advocate of draining—and they learned that the Scotch farmers were thrifty and getting along as well as usual, and the committee asked the English and the Scotch how their lands were managed. *Those who had gone in for thorough tillage had not suffered much.* The subsoil plowing—the drainage had accomplished immense benefits.

Mr. F. then described the manner in which on his land where such an abundance of stone existed as to make it an object to procure their removal—drains were made. He greatly preferred the use of the tile, and considered that they must be brought into general use from their cheapness, and from the fact that by their use the work was so thoroughly done.

The thorough disintegration of the earth, the absence of that cold water which to some part of vegetation is as the chill of

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death, the earlier preparation and working of the soil, the greater certainty and the larger yield of the crop—all these results are legitimate from the skillful use of draining—a tillage which is within the reach of every farmer.

In answer to an inquiry whether it was economical to get tile when good stone were plenty, Mr. F. said that the advantage of cheapness on the part of stone was only when it was actually necessary to get rid of the stone, not when they were to be hauled at any considerable distance. He preferred the pipe rather than the horse-shoe tile.

Joseph Harris, assistant editor of the Country Gentleman, thought that under-draining was destined to do more for the improvement of American agriculture than any other one thing. We all know what it has done for Great Britain, and he believed it would do still more for this country. Many people appear to think that in the moist cool climate of England under-draining is more necessary than in our dry, hot seasons. This was a great mistake. In England, though it is said to rain all the time, and the atmosphere is so hazy that the sun, in the language of Horace Greely, looks like a "boiled turnip;" yet, on an average, *half as much again rain falls here in a year* as in England. We have great rains and great drouths; and what we must aim at is some means of mitigating these two evils, of making one neutralize the other. Under-draining in conjunction with subsoil plowing affords the best means at present known. In wet weather the underdrains carry off the excess of water, and in a dry time the pores formed by the descent of the water to the drains become capillary tubes and carry water from beneath to the roots of the plants. This is not mere theory. An underdrained soil will be found damper in dry weather than an undrained one; and the thermometer shows a drained soil warmer in cold weather, and cooler in hot weather, than one that is undrained. For this and other similar reasons, he believed, as he said before, that underdraining would do *more* for the improvement of American agriculture than it had done for England.

Mr. Harris mentioned several instances that had come under his own observation in this country where underdraining had been of immense benefit, and especially during the drouth of the

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past summer, had the beneficial effect of drainage been most manifest. On the farm of H. C. Ives, Esq., near Rochester, an underdrain, laid with stones, had been cut through a field, and the wheat on each side of this drain, for several rods, was, at least, as good again as on the other portions of the field. But he need not dwell further on this point. He believed most intelligent farmers were convinced of the benefits to be derived from drainage, and all that was necessary was to satisfy them that a judicious expenditure of from $20 to $30 per acre in underdraining would *pay*. Mr. Johnston, near Geneva, had shown that on his farm the increase of the crops had paid for the whole expense of underdraining in two or three years; and he (Mr. Harris) was satisfied, when we bear in mind that the increase of crops is *net profit*, that no investment will pay better than money judiciously expended in underdraining.

The Chairman, Mr. Osborn, called the attention of the meeting to some atmospherical phenomena immediately preceding and during the drought. Nothing unusual, he remarked, appeared in the regions where it prevailed as to the routine of wind and weather until the great north-western gale of March last. That wind flood became memorable not only for its intensity and extent, but also the injury done to property in its sweep. After this event there appeared to be a change in the wonted course of the winds during the spring and summer following. For twelve successive days thereafter he noticed that the surface winds were either from the north or from the south, particularly in the vicinity of Albany. The usual amount of rain fell in early spring, but on the approach of summer, when the clouds gave indications of rain, they were generally dispersed without dispensing the needed shower.

A few passing remarks as to the cause of wind and rain may not be inappropriate to the subject under discussion. Most people understand the process of distillation of a liquid, particularly that of water. It is simply converting water into steam in a covered kettle, and conveying the vapor through a pipe into a condenser, where it is restored to liquid form. In fact, almost every house keeper cannot have failed to notice this process of evaporation and condensation of water in the kitchen department. How common it is that on washing-day when the evapo-

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ration of the boiling kettle is profuse and a cold exterior atmosphere, to see drops of water gather upon the windows and upon the ceiling. The same process is going on constantly between the two conditions in the elements of water; and the great atmospheric dome that covers the earth is the region where its exhibitions are on a most magnificent scale. In this order of things there is vouchsafed to man sunshine and shower, "seed time and harvest, while the earth remaineth."

There is no great or universal element of earth so constant in the change as water, in the evaporation and condensation. From a liquid state it passes away unseen and noiseless, and ascends in an undimmed medium, and first gives visible evidence of its existence in the upper sky in the formation of the cloud, and a farther condensation of the cloud produces rain, and that brings it around to the place of its origin. Winds and rain are indispensable in the economy of husbandry. In their separate or conjoint action rests the hope of the "tiller of the ground." Each has a distinct cause in its origin, and each may exist for a time being without the other; but as a general rule they co-operate in bringing about the periods of distribution. The origin of winds and the formation of the raining cloud may each claim a brief notice.

Winds are generally formed by unequal temperatures of the atmosphere upon the same level. When a fire is kindled it expands the air for a certain distance around, the exterior colder medium rushes in, for the reason that an equal volume of the latter is heavier than the former; hence the tendency of the "spark to fly upwards." Although the process is invisible yet its effects become visible by an influence upon the objects with which it is connected. Liquids are obedient to the same law. Let oil and water be put into a partitioned vat in a separate order. By removing the partition, the water being the heavier of the two rushes into the department of the oil, and at once raising the latter to the surface. In the process a current is formed not unlike that in the air when isolated parts become rarified. And perhaps the comparison of a liquid is still more analogous to that of boiling water. When the fire is placed at the side of the kettle the water there is converted into steam and rises, the contiguous water rushes in and hence a perpetual current.

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In applying the principle to atmospheric phenomena we are to cast about to discover the cause of these unequal temperatures existing upon the same relative level. The first thing that claims our consideration is the peculiar configuration of the earth's surface. Here the first test, the first sensible difference in temperature, arises from the inclination of surface presented to the rays of the sun. Upon the south side of the hill the snow disappears before it does in the contiguous plain, for the obvious reason that the rays of the sun impinge the surface in a more direct angle. Following the rule that the varied angle of the rays with the surface as an explanation for the variety of temperature in a district of country, we commence the task of observation, and we are at once met with hill and dale, the river, valley and the upland range, the long sloping field and the precipitous ledge—all producing, during the same period of sunshine, the varied temperatures of surface air. As we extend the view we have before us the cultivated field and the forest-shaded land, snows lingering on the hills and in the woods, while other places send forth their warm breezes from a surface exposed to the sun. Nor do the causes of varied temperature terminate here. There is the land and water surface, sunshine and the shadow of the passing cloud, the vicissitudes of day and night, the succession of the seasons as controling all minor causes. While we thus contemplate this wonderful complication of causes, both as to intensity and extent, are we not to look for corresponding results? And what can be more varied than the aerial currents. There are the trade winds that cease not, the periodic monsoons, the fitful tornado, and winds of "milder form." Thus can we trace cause and effect in "mid air," through that great infinitude of degree, until

"The aspen in foliage is made to confess the gentlest breeze."

The shower.—The stratification of the winds is the one main cause of the rains. This leads us to investigate the principles of this arrangement. It not unfrequently happens that three winds, one above the other, and of different directions, exist at the same time, as indicated by the floating cloud. As the upper stratum is the coldest, we are led to inquire why it is prevented from rushing down to the surface of warm air, in accordance with the rule,

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as above, that a cold medium is made to occupy that of a warmer by the law of weight. Although the law of gravitation is all-pervading, yet the law of density is equally so. We are to look for a solution of the question in the arrangement of these two forces. The law of gravitation becomes effective when unequal temperatures exist side by side—the law of density when one medium overlies the other. The former may be compared to the walls of a room—the latter, to the ceiling. It is the position of surface presented to the great terrestrial center that gives us the two ideas of these pressures, and yet they may be the result of the same law of gravitation manifest in different forms. That the atmosphere is lighter as we ascend is proved by the indications of the barometer, by the ascent in the balloon, and in climbing the lofty mountain.

To continue the observation; we see that a current of cold air in the upper sky, though heavier for its being cold, is still lighter by the law of density, than a warm current existing underneath. Here we contemplate a beautiful adjustment in the equilibrium of forces.

Another important fact in relation to the stratification of winds, is the adhesive force of the atoms constituting the volume. It is well known that a body while in motion, will penetrate through another body still more resisting when at rest. A leaden bullet is made to be driven through a bar of wrought iron, by the gun-shot, and the candle through the board in the same manner. Currents of water may be projected far along the surface of that which is at rest; and, as an illustration, as proof in point: the visible fumes of the exhilarating pipe, driven out by pneumatic force, are made to assume the form of an inverted cone. The momentum of a wind current is in accordance with the depth and width of volume; some of them are perhaps miles in depth, and in width spreading over entire States, and in extent passing over entire continents. Our great north-western wind comes from a very remote quarter; it is a majestic wind; other winds spring up beneath. Were these various winds solidified and made visible, they would stand out as a group of rocks; and notwithstanding unseen, the results are convincing proof of their arrangement.

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These winds of various direction impinge, in their passage, more or less the one upon the other. They virtually press into each other, to a certain depth, forming thereby whirls and eddying currents. Here in this contracted stratum is formed the cloud—it enlarges and condenses—the rain follows, and the fiercest wind bears away the trophy of the conflict. In this middle aerial field are principally confined the atmosperic phenomena—the wonders of the storm. We are ever led to observe the varied forms in which the development is made. Even the clouds themselves are classified, by meteorologists, according to their position and appearance.

The rain cloud is the most prominent feature in the great drama of atmospheric exhibitions. The very element that contributes so essentially in supplying our wants, is, in the transformation, made to stand forth in the sky a wonder and a terror. But with all its frowns and its fury, it becomes the messenger of mercy. We propose, however, to consider more particularly the manner in which the rain storm is formed and brought to a termination. A cloud is the result of an atmosphere surcharged with humid vapors, and from this issues the rain. This must be a result, or else all the water of the seas would be transferred to the atmosphere, and a land surface every where exist. Two causes tend to increase the magnitude of the cloud on its first appearance as of a "hand's breadth"—the aggregation of atoms or elementary particles. There appears to be a mechanical affinity in the process. Another cause for its "speedy enlargement," is the shadow that it casts. The temperature of the atmosphere is at once changed, the entire prism of this shadow from the base of the cloud to the earth. This at once disturbs the equilibrium of the air; currents of wind are formed; the cloud increases, and the shadow increases; all the forces are gathering strength. A current rushes up to the cloud from the earth, as into a vacuum, produced by the rapid condensation of the air, and this current rolls out the upper surface of the cloud, not unlike that of steam issuing from the smoke-pipe of a locomotive. This white mound of fleeces topping the thunder cloud, is produced by this upward central current

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As the cloud enlarges, the rain begins to descend. The exterior currents still continue to make contributions to the storm, until a general commotion ensues. This strife is generally pushed forward in some direction, exhausting the air of its humid vapors in its march. In this we may have a solution of the periodic storm. The rain cloud has drawn into its dark, freezing bosom the watery vapors, to a degree of exhaustion far below what the atmosphere was capable of containing in a clear sky. The clouds then become but the mere skeleton of the storm, and are soon dissipated. Hence we have the order of rains and fair weather in the succession. Did condensation and rain take place at a certain degree of saturation and exhaustion, and never go below that point, there would be a constant drizzling rain upon the earth. This is the local summer shower, the peculiar feature in its formation is the ascending current of air, which at times becomes so intense (as is supposed,) as to cause that wonderful display of electric phenomena. There are are other rains, of a milder type, of a wider range, and of a longer continuance. These are supposed to occur from one wind impinging upon another, in the stratification above stated. In this the action becomes horizontal, in the summer shower perpendicular; and here we may venture to affirm that we should have no summer rain from any source, except on the mountain, were it not for the stratification of the winds. The summer cloud would, like the locomotive steam, go up and be dissipated. This upper current constitutes a cold ceiling, which limits the clouds below to a certain elevation, thereby forcing them into a contest, and the result of which is, the earth gets watered and refreshed. Who is not familiar with the history of the thunder shower? We arise on a summer's morning; the surface air is quiet—the northwestern wind prevails above, as indicated by the coterie of floating clouds making their way eastward—the heat increases as the day advances—the clouds are formed—the thunder shower prevails—and, after a strife among the elements for a few hours, we notice a dark cloud rising in the west; it rapidly approaches, and soon sweeps away every vestige of conflicting winds. The effect was this: The quiet and steady floor-way of the western wind of the morning became in a measure collapsed by the storms of the day, and the

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western wind came rushing over the aerial precipice like the river upon a table land rushing down in a cataract into the chasm below. Hence the cool wind that follows the clearing off shower is the same morning wind becoming in the evening a surface wind. This western wind not unfrequently becomes during the day a surface wind, in accordance with the expansion produced by the rays of the sun.

Although we may have a general knowledge of the causes of winds and of rains, yet we may not be able to apply hem in accounting for the drought of the season past. There are many facts involved in the question, and many suggestions to be made. How far the great wind of March had a controlling influence may be a matter of doubt. Other causes have been at work. For some time past the annual snow wave of the Arctic region has been pressing its margin into the temperate climes. In 1854 its approach was seriously felt in the border settlements of Canada. In 1855 it appears to have swung around on the western prairies. Then occurred the wind of March—the prevalence of northern and southern surface winds, and the drought. The inquiry may be made, what caused the wind aforesaid? Did it impair the subsequent northwest winds that followed—or did the north and south winds acquire a greater force and constancy from the nearer approach of the Polar snows to the Atlantic ocean? We are to view these unusual events as but a combination of causes that produced given results. The great prevailing northwest wind spoken of may have been so diverted at times as to fail of giving us the usual supply of the watery vapors from the lake regions, where it may have originated. The southern winds appear to have passed unmolested far distant inland, and left their humid load in the Canadian wilds.

There is another fact connected with the drought that has an important bearing in the discussion. It may be expressed in this wise: The continued dry weather appeared to prevent the occurrence of rains when the elements were tending to bring about that desirable result—that is, it rained not in August, for the reason that no rain fell in July. Notwithstanding it is the great order and direct course of things for the waters of the ocean to

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be trailed over continents and returned again in the river current, yet a portion of it is used over many times before it reaches the sea. The land surface, with all its superincumbing objects, gives wonderful facilities for evaporation. Every tree, every spear of grass, and every fixture placed by the hand of man presents a surface to the action of the atmosphere. Who has failed to observe how rapidly the drenching waters of the shower disappear in a drying wind? This all goes to swell the amount brought direct from the sea. For this reason we may account for shower following after shower, at particular times, until the energies of some prevailing wind are aroused and the scene of strife is transferred to other localities. There may be an extreme in the other direction. In the latter period of the drought the rain cloud would commence forming, a sprinkling would follow, but as the dry surface air arose into the region of the cloud it appeared to absorb all the moisture it contained, and, in common speech, it blew over without rain. In this way we had to wait, probably, until the changing seasons brought about a different combination of atmospheric forces.

If the phenomena of wind and weather are the result of the forces in nature, of which we are so familiar, why, it may be asked, are they so fortuitous to us—aye, indeed, why not foretell the weather? For the simple reason that we are not familiar with the chain of cause and effect that extends through every department in the scheme of meteorology. We cannot see the aerial currents that are constantly prevailing above us. We have but a limited knowledge of the number, depth, area, velocity and direction of the several strata that make up the group. Much less are we acquainted with the elements they waft along at times, in an invisible form. Therefore, to us the shower becomes a contingency, notwithstanding the "inexorable chain" of cause and effect. Were we to go into the forest, and the question should be asked, Why did the maple grow here—the beach there—the birch yonder? We cannot tell; to us all is accidental—fortuitous. It might have been otherwise as well. Now had we been attendant observers of the growth and maturity of the seeds from which they sprang, and of their distribution by winds or currents of water to the place where they germinated, took root and grew, we could answer the question by the "line and plummet."

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There is no object that can give us a better idea of these winds than the river. We can see how it is formed. Its direction, its volume, its velocity, and its labors in the abrasion and in the transport, all come under our notice; and we can understand that when it tears up and moves along its rubble bed, or bears in its bosom the impalpable dust of the field, to be deposited in quiet waters, that it is in accordance with physical law. So of the atmosphere. Its movements are analogous; the facts are as real; the law is the same.

Having thus briefly remarked upon the causes of the drought, we are to consider how this knowledge can be made available should we again pass through a like visitation. Perhaps its applicability can only have a collateral bearing. In a general view of the subject some appropriate suggestions may be prompted. In the vicissitudes of weather, giving us sun-shine and shower in the alternate, and in the labors of man co-operating, we have the production of the domesticated plant. The husbandman, in the course of his toil, finds it as necessary to provide nourishment for his field crops as food for his beast; and for the latter he has a forethought of springs of water in his pasture, or cisterns in his yard. In his experience he learns also that the growing product requires the same element in some form to bring it forth in its strength and maturity. But how shall he provide for the plant when the drought prevails; irrigation has been resorted to many times during these seasons, with much success, but this mode of watering vegetation has been confined to gardens, or where the surface and brooks of the farm give such facility. But on the generality of farms this cannot be done without great, and perhaps not remunerating, labor. Other modes may be adopted at less expense, and yet subserve the same purpose. *Drain the wet lands and give all a deep tillage.* (Here the question was asked, "Why not retain the water to meet the contingency of the drought?")

Mr. O. continued somewhat in detail in answering the question, by remarking that every plant as well as every animal had a peculiar construction of functions, which, when in action, gave it growth and life in a certain element. There was

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the aquatic weed and the aquatic animal, the land plant and likewise the land animal, and a host of plants and animals midway of these two elements, all with some peculiar functions adapted to the elements with which they come in contact; and when these plants or these animals exchange elements that were essential to their existence for the opposite, the extinction of life would soon follow. The functions employed in building up the vegetable and animal frame are quite analogous in the process; each has the power to dissolve and digest the mineral elements, each is built up by a circulatory process, in which there is a definite arrangement of parts. The enameled tooth of the animal is not more peculiar in the general frame than is the stony pit of the peach enclosed by a delicious pulp. Then what is mastication and digestion in vegetable life. This calls us to examine the structure of the plant and its connexion with the ground. Let a perpendicular excavation be made a few feet deep under the plant, then wash down the face gently by a drip of water, and one is astonished at the infinitude of fibrous roots branching out from the stool. Their name is legion. At the end of each of these roots is a spongy formation, usually called a spongiole. It subserves a two-fold purpose; it exudes a liquid that dissolves the minerals with which it comes in contact, and then absorbs the new solution. In this form the minerals of the ground are made to ascend to the leaf. The leaf becomes the laboratory of the plant or of the tree; in it are centerd the elements drawn from the earth, and those absorbed from the atmosphere. Here the process of digestion is completed, and the solution distributed by the sap throughout the frame work, by the circulatory process.

We may, in this order of things, have some just conceptions of the solvent forces of the root, the digestive functions of the leaf, and the distributing labors of the sap. But here in the progress we are met with the mystery of all mysteries in vegetable and animal growth. Why this peculiar arrangement in the distribution? this singular secretion of parts?—why the bones, the muscles and the nerves of the animal?—why the microscopic eye and the echoing ear?—why does the poisonous leaf of the peach send forth the elements of a beautiful bloom, and the fruit that is "pleasant to the eye and sweet to the taste?" In the teachings of natural science our limited comprehension fails in finding a solution.

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We stand in astonished silence and let the question go unanswered.

But to extend our observations still further in relation to the root, we see that this feeble, thread-like fiber is made to extend far into the compact earth; we inquire as to the force. When we say that the root penetrates the earth, the idea may be inapt unless, in the comparison, we say the stem and the leaf penetrate the air. The process is not unlike that of the lithodome, a small moluscous animal that makes a hole in the solid rock in which it lodges itself. This is not done by chipping or abrading the rock, but by dissolving it with the fluids of its mouth. In like manner the root makes its own pathway, and with the same apparent ease. Water is the basis of the fluid of the root, but before it can become effective it must be surcharged with foreign matter both from the soil and the atmosphere. The compound must have a definite strength. When the spongiole of the land plant is submerged in standing water, or the earth becomes saturated therewith, the exuded juice is diluted in coming in contact with it, and fails to act upon the mineral. So also, in the other extreme, when the ground is devoid of moisture, it absorbs these juices, thereby retarding the growth of the plant. In either case the soil to the plant becomes a barren soil in failing to contribute its share of mineral constituents.

The next course to be pursued in husbandry, to meet the contingency of a drought, is deep tillage. This, perhaps, cannot be contradistinguished from tillage in the general sense. It may require us to do the same thing in a more thorough manner than we have been wont to do. Experience teaches us that the success or failure in farm tillage is not left to the freaks of chance. There is some immutable law connected with it, producing results equally as certain. The condition of the soil under tillage in regard to moisture changes almost daily the labors of the husbandman. When the ground becomes drenched with rains, and the clouds break away, where does he commence plowing? If he has a pasture or meadow that needs turning under, there you see him at work. If he went into his corn-field he would turn the soil into a mass of mortar. The condition of the two fields is a mechanical result; that which was recently plowed is more porous and capable of absorbing and retaining a greater amount of mois-

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ture, while that under the turf is compact and the water remains upon it to be evaporated, or it runs into hollows and passes away as through a funnel. In plowing and stirring the soil it becomes pulverized, that is, the particles are separated, thereby leaving interstices between them. These cavities retain minute particles of water, in the aggregate called moisture. In a porous soil you have two strata as to moisture, the surface one tilled and moist, the subsoil compact and dry. Surface soil is best adapted to the extension of the root. The importance of deepening this stratum at once becomes apparent. It gives the best facilities for enlarging the depth and breadth of the roots of the plant, and of increasing their number, and hence the vigorous appearance of the growing crop.

The application of manures has an important bearing in view of a long continuance of dry weather. Animal and vegetable manures subserve a twofold purpose—first, by absorbing and retaining moisture; and, secondly, by imparting a liquid analogous to that existing in the spongiole; therefore, it will be seen that drainage, when necessary, and deep tillage, puts the land in about the same condition for a crop; and should there be an excess of rain the surplus soon passes off, leaving a certain amount in absorption; and should the other extreme occur—the drought—its capacity for retaining moisture is still augmented.

After making the above remarks in answer to the inquiry, Mr. O. proceeded to give some general views as to the importance of the agriculturists becoming acquainted with the principles and mysteries of his calling. It appears that to man is assigned the important task of developing vegetable and animal growth. In his more civilized state he was to find "a lodge in some vast wilderness, some boundless contiguity of shade," there, "with force and arms," he was to clear away the dense and gloomy forest, and from the wild domain of nature bring into his enclosure the plant and the beast that would yield him food and raiment.

This department of human labor is time-honored. It has been continued from father to son, from one generation to another, from a remote age; and yet the experience and progress have failed.

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to correct certain errors that have run coeval therewith. An acquaintance with the laws of vegetable growth has rendered farming with many, to a certain extent, an annual experiment. The forebodings of chance, at times, presses spell-like upon the successes of hope, until the season determines the fate. In times of drought oft does the sage of many years watch the phases of the moon to discover some kind token of a refreshing shower; oft does he call upon Hercules for help without considering that he also must put his shoulder to the wheel. In some departments of husbandry he understands force of physical law and acts up to its principles. In summer he provides fodder to be consumed by his beast in winter. He has no misgivings that his horse will perish while standing up to the well replenished rack. We inquire, What is the drought to the plant, but winter to the beast? Both claim the provident care and forethought of him who "tills the ground." Experiments in farming, as well as in chemistry, often lead to useful and important results; but when successful, it is discovered that there is a physical law at the bottom, and man rebukes himself that he had not made the discovery before. He failed to start with the belief that in nature "all chance is direction." Nature has placed landmarks as guides to the inquiring mind, and he who would, with success, trace out the mysteries of cause and effect, must, at every step, invoke the spirit law:

"What in me is dark, illumine."

The discussion suggests the question, Of what practical use can a knowledge of winds and storms be to the husbandman over which he can have no control? Can a knowledge of meteorology produce a result in the mind of man which itself shall become a cause? Is this science to be studied only for its own sake? or is it a part of the workings of nature that mental force should be employed to direct physical law? "Let him who toils in hope" answer the question.

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AGRICULTURAL MEETING, JANUARY 31, 1855.

Mr. Woolworth, Principal of the Normal School, in the chair.

Subject for discussion—The Dairy interest of the State.

Mr. Johnson, Secretary of the State Agricultural Society, remarked—That the dairy interest was one of very great importance in our State, and that in this department of agriculture perhaps as marked improvement had been made as in any other. The Society had at an early day directed attention to this subject, as it was manifest that the quality both of butter and cheese was far lower than it should be—while the quantity from the dairies of the State, was much less than could be realized under a proper system of management.

By the State census of 1845, it appeared that there were 999,400 cows employed in the dairy; of which number, it was estimated that 333,163 were devoted to the manufacture of cheese, giving 36,744,976 lbs., or about 110 lbs. each cow. The number employed in the butter dairies was estimated at 666,237, yielding 79,501,733 lbs., or about 116 lbs. per cow.

It was apparent that this was far less than should be realized from well managed dairies. From an examination of the returns from the different counties, it was ascertained that in the county of Herkimer, then, as now, one of the first cheese districts in the United States, the average of cheese per cow was 226 lbs.; in Fairfield, in that county, 350 lbs. per cow; and one dairy, that of A. L. Fish, Esq., Litchfield, had given an average for three years of 680 lbs. This induced the Society to make efforts to remedy this deficiency.

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In 1847, and subsequent years, experiments were made, and reports obtained from practical dairymen, which showed practically the reason why the returns were so small from the dairies of the State. It was ascertained by accurate trial, that one cow would produce as much as three others in the same dairy—but until the experiment was carefully made, the dairyman was not aware of any difference in his herd, except the different quantities of milk given. And this was no test, for the best butter cows usually were not the largest milkers. This led our dairymen to test their cows, and the result has been a very marked improvement in the quantity of both butter and cheese per cow.

In Oneida Co., some years since, a bull of the Holderness breed was introduced, and a large number of heifer calves were dropped, and when arrived at maturity, proved generally extraordinary good milkers. One of these cows, which gave from 25 to 32 quarts of milk per day, was kept with a small cow of the Mohawk breed, so called, which yielded only from 12 to 14 quarts; the milk was placed together, and butter made, but the yield was not satisfactory; a separation took place, and the milk of the Mohawk cow produced the finest of butter, and very nearly equal in quantity to that of both combined, while from the milk of the Holderness it was impracticable to obtain good butter. The latter was placed with cows used for the cheese dairy and proved valuable; this led also to a careful examination of other cows as to their individual qualities, and was productive of good.

The Lactometer, a very simple arrangement of long glass tubes in a frame, which are graduated, will enable a dairyman very readily to test the quantity of cream each cow will give from a given amount of milk. These are frequently used for the purpose.

By the returns of the census of 1850, it is found that the number of milch cows has diminished—being only 930,967; 58,433 less than in 1845. Still the increase in cheese was 12,991,437 lbs.—160 lbs. to each cow; and the increase in butter was 264,361 lbs.—128 lbs. to each cow; against 110 lbs. of cheese and 116 lbs. of butter in 1845. This increase alone was worth, at the market prices of butter and cheese in the dairy districts, $1,202,580.27,

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and to this is to be added the value of the 58,433 cows, and their keep, which has been saved to the dairymen of New-York. It is believed that a very considerable portion of this increase may be fairly traced to the efforts which the Society has made to advance this great interest of our country—a sum more than sufficient to endow an institution for all time to come for the education and elevation of the farmers of our State.

That much more should be done is admitted; and we do not intend to relax our efforts until we can secure at least 200 lbs. of butter and 400 lbs. of cheese per cow. That this can be secured we have the evidence of what has already been done, and our best dairymen unite in saying it can be done, with well selected cows, and with proper care in their keep.

It is believed that for dairy purposes a very large portion of our State is superior to any portion of the United States. The celebrity of "Goshen butter" is known the world over," and yet it is satisfactorily proved in our Trans., vol. 7, 1847, p. 570, that a very large portion of the butter that has this celebrity is made in other counties of our State.

In the geological survey of our State, Professor Mather, in his report, p. 313, in speaking of the Catskill division, says, "This country is admirably adapted for grazing, both for cattle and sheep, and the *fine sweet grass and cold springs* offer as great facilities for making excellent butter *as the world affords.* A *large* proportion of the butter sold under the name of "'*Goshen butter*,' which is celebrated for its superior qualities, is made in the mountainous regions of *Delaware, Sullivan, Ulster and Greene counties.*" And he might have added, butter of like superior quality is made in Broome, Chenango, Chemung, Tioga, Cortland, Oneida, Lewis, Jefferson, Oswego, St. Lawrence, &c.

Grasses.—The grasses adapted to grazing districts, which are termed natural grasses, are in England about twenty-six or eight in number, affording a fresh bite for the cows during the entire season.

The Society, in hopes to aid the farmers, imported last season fourteen varieties of the best English grasses, and the seed was distributed in different parts of the State for trial. The severa

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drouth, it is feared, has rendered this effort a failure, but it is hoped that sufficient of the seed may have been saved for a trial the present year; if not, further efforts will be made to accomplish this.

The lamented John Delafield, who had given much thought to this subject, compiled the following list of grasses, and then commended the following quantities of each to be used:

1.	Meadow foxtail, flowers in June, early,	1¼ lbs.
2.	do fescue, do June and July,	2½
3.	Rough stalked meadow, do	2
4.	Fertile meadow grass, flowers in July,	2
5.	Sweet scented vernal, flowers in May and June,	1¼
6.	Rye grass, flowers in June and July,	5
7.	Rough cocksfoot or orchard, flowers in June & July,	4
8.	Timothy, flowers in July,	4
9.	Red top, flowers in June, July and August,	2
10.	Spear grass, flowers in May and June,	2
11.	Red clover, flowers in June, July and August,	6
12.	White Dutch clover, flowers in July and through the season,	4
		36 lbs.

The quantity of land necessary for pasturage and hay for each cow will, of course, depend much on the character of the pasturage and grass. The answers to inquiries on this subject vary much. Three acres is generally considered enough for a cow for a year. Some say four acres, and one dairyman as high as four and a half. With good care and proper attention, when the land is kept in good order, two acres will be sufficient.

In the dairy districts in this State, timothy, red top, and red and white clover form the principal varieties of grasses for pasture. White clover is preferred, and is indigenous to all the dairy districts; and June grass is generally found in the pastures. Senator Dickinson, of Steuben, gives for pastures, timothy, white clover, blue grass and red top. He thinks that "the older the meadows and pastures, the better quality will be the grass."

It has been found in New England and, I believe, in some portions of this State, that pastures devoted solely to milch cows after a time become exhausted and the cows diseased.

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It is well understood by all good farmers that continued cultivation and cropping of land will soon diminish its fertilizing qualities, rendering necessary a judicious application of manures, to restore the exhaustion caused by the crops grown. It has appeared to us, that probably our grazing lands, which are solely devoted to that object, will, ere long, begin to give indications of a failure to supply that kind of nutriment which is best adapted to the healthfulness of the cow, and to the secretions calculated to furnish the requisite quality of milk. The phosphates, so important and necessary for the milch cow, and which are carried off so largely from the pastures, in the milk, will need to be returned. This has been the case in Cheshire, in England, which has been a dairy region from the earliest period of English history, and bones and bone dust have been long used there as indispensably necessary to restore the waste made by the animals fed upon the pastures. The following extract, from an article in the Edinburgh Review, in relation to Cheshire, shows more particularly the result:

"Dairy husbandry has long prevailed in Cheshire. Now it has been ascertained that every milk cow robs the land annually of as much phosphate of lime as is present in eighty-two pounds of bone-dust. From being thus gradually despoiled of this valuable mineral, the Cheshire pastures have become less rich in nutritious herbage; and hence the peculiar benefit derived from boning them, a practice now so extensively and properly introduced."

In Massachusetts, I was informed, not long since, that the sale of pulverized bones for this purpose has become a regular branch of trade, and that their use has remedied the difficulty experienced in the exhaustion of the phosphates in the soil. In England the attention of the dairymen was called to the wants of the cows, by their eagerness after bones whenever they came in their way, and it is presumed that every farmer who has given attention to the matter has noticed this disposition in milch cows. They endeavor thus to supply the waste that is made, when the land fails to furnish the needed supply.

Selection of cows for the dairy.—The following description of a dairy cow, given by Mr. Aiton in his survey of Ayrshire, Scot-

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land, where they have the best dairy breed of cows in Great Britain, is a very excellent one:

"The shapes most approved in the dairy breed are as follows: *Head* small, but rather long and narrow at the muzzle; the *eye* small, but quick and lively; the *horns* small, clear, bended, and their roots at considerable distance from each other; *neck* long and slender, tapering towards the head, with little loose skin hanging below; *shoulders* thin, *fore-quarters* light and thin, *hind-quarters* large and capacious, *back* straight, broad behind, and joints of the chine rather loose and open; *carcase* deep, and the *pelvis* capacious, and wide over the hips, with fleshy buttocks; *tail* long and small, *legs* small and short, with firm joints; *udder* capacious, broad and square, stretching forward, and neither fleshy, low hung, nor loose; the *milk* veins large and prominent, *teats* short, pointing outwards, and at considerable distance from each other; *skin* thin and loose; *hair* soft and woolly; the *head*, *bones*, *horns*, and *all parts* of *least value*, small, and the general figure compact and well-proportioned." (*Farmers' Mag. and Mr. Aiton.*)

"The *qualities* of a dairy cow are of still greater importance than her shape. Firmness and docility of temper greatly enhance the value of a milch cow; one that is quiet and contented feeds at her ease, does not break over fences, or injure other cattle, so much as those that are of a turbulent cast. To render them docile they ought to be gently treated, frequently handled when young, and never hunted with dogs, beat or frightened. A moderate degree of hardiness, life and spirits, with a sound constitution, are desirable qualities in a dairy stock, and all these are found in the Ayrshire. Some have mentioned it as a valuable quality when a cow subsists on a small portion of food; but that will depend on the quantity of milk which one so fed will yield. If any cow gives much milk on little food it is one of the best qualities she can possess; but of this I entertain doubts, which forty years experience, inquiry and observation, have served to corroborate and confirm. I have heard it asserted that some cows will yield as much milk, and fatten as fast, when fed on coarse, as others will on rich food; but I never met with, nor do

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I expect to see such cows. The old adage so common in Ayrshire, that "a cow gives her milk by the mow," has always held good so far as I could perceive."

M. *Guénon*, a French writer, has discovered certain indications which he claims determine the milking qualities of cows. This he calls "escutcheon," being the hair which grows upwards (contrary to the general rule) on the udder, thighs and hinder part of the body. It is easy to distinguish the escutcheons by the upward direction of the hair which forms them. I cannot go into detail here upon this system, but would refer to the work of M. Guénon itself. But to show that it is esteemed worthy of notice I will allude to the testimony of those who have given attention to it.

Mr. John Haxton, in a work published in 1853, entitled, "How to Choose a Good Milk Cow," in reference to the indication of a good milk cow, page 178, says, "The writer has examined many hundreds of dairy cows in Britain, and the conclusion arrived at in regard to M. Guénon's test of judging of the milking properties of a cow by the development of the *écusson*, is, that in a very large majority of cases it is borne out by facts." In a London dairy, belonging to Mr. Biggs, 31 Edgware road, where about 400 cows are kept, and where nine-tenths of them are far above average milkers, the *development* or *upward* growth of the hair on the posterior part of the udder, thighs and perinæum, was too remarkable to be accounted for by accidental causes; as well might it be said that all other tests, such as length of head, softness and flexibility of skin, and wide quarters, were accidental, and had no reference to the milking properties of a cow. When a phenomenon presents itself over and over again, accompanied in a majority of cases by certain results, we may be certain that it is not accidental, but natural; and while we may be unable to account for these results upon satisfactory grounds, it is neither philosophical nor prudent to deny or ignore the connection between the one and the other, and thus to forfeit the advantages which the fact itself is calculated to afford."

The late Mr. Phinney, of Massachusetts, a very careful and critical observer, made examination of a large number of milch

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cows, and found in a majority of them who were good milkers these developments well marked. He conversed with a large number of intelligent gentlemen when he was abroad in 1851, in Great Britain and France, and found but one opinion as to the general character of the animals which possessed these developments. And so far as we have learned the views of gentlemen in this country, who have given attention to the subject, the result has been the same.

I think it may with safety be affirmed that this "one principle is established—that, all things being alike, as regards shape, texture of skin, &c., cows with well developed escutcheons will, in a large majority of cases, be found to be the best milkers, and above an average; while, on the other hand, those with very small escutcheons will be found under, or at most not above an average in their milking properties"

In calves the escutcheons show the shapes which they are afterwards to assume. They are more contracted, only because the parts which they cover are slightly developed. They are easily perceived after birth, but the hair which forms them is then long, coarse and stiff; after this hair falls off, the escutcheons of calves resemble those of cows, though of less size. This will enable the farmer to save such calves as will probably serve him as good milkers.

Spaying Milch Cows.—The French pay more attention to critical investigations in agriculture, perhaps, than any other nation. On the subject of spaying cows there has been very much done, which seems to lead to results certainly worthy of consideration. I give what has been said in relation to spaying cows from a late French work:

"Spaying of cows, at a certain period of their life, offers immense advantages to the agriculturist and consumer, in producing much augmentation of milk and meat. In this way the animal escapes a host of ailments, and spares a host of losses, sustained in consequence of her bulling at times when it is either inconvenient or impossible to gratify her desires. Spaying of cows, Pro-

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fessor Bouley says, creates a new race, sterile for breeding, but productive and valuable for the purpose of yielding milk for the dairy and meat for the butcher. Spayed cows yield, annually, for the first two or three years at least, a third more milk than they were in the habit of giving before the performance of the operation. A cow spayed thirty or forty days after calving, or at the time she is giving the most milk, continues to yield, if not for the remainder of her life, at least for many years, the same large quantity of milk, and sometimes more than she gave at the time of performing the operation. French veterinarians have, for many years, had their attention directed to this subject; and each year their experience, as well as that of agriculturists, leads them to speak more and more favorably of the practice."

I have already detained you longer than I designed, and give way to gentlemen who are practically acquainted with all the details of the dairy in our State.

The Hon. Mr. Eames (of the Assembly), to whom Mr. Johnson remarked that the society had awarded its premiums, said, that he had been engaged in the cheese business for sixteen years, and had followed it up with all such experiments as he deemed would lead to the best practice during that period. There was a vast amount of information to be gained of profit to the dairyman in the selection and keeping of cows and the manufacture of cheese. Buyers had been blameable for abuses in manufacture. Strange as it may seem, it is true. The price for the season is generally fixed, and ranges through the whole course of dairies uniform, whereas there is a vast difference in the manufacture of the article, in the nicety of work, the cleanliness in all cases observed, the salt, the amount and quality, the packages, the place of keeping; all this may operate very materially as to the quality. Buyers go in to buy a farmer's dairy of butter. The question is asked, What did you pay my neighbor? and when the answer is given, the reply is, that mine is worth as much as his, and so the price is fixed. Thus, a good dairy often sells a poor one. He knew it was so in cheese. Year after year prices are paid similar to that received for a good article for an article not fit to use, and which would be so decided by a competent judge. That prejudices the manu-

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facturer of good cheese. It is often expressed in a dairy district that one gets the same price with the other, and hence it is a plea often used in respect to the preparation of the cheese, and in the curing and packing of it, thus influencing the character of the dairy, and leading to neglect in the manufacture.

In reference to cows, one dairyman in his neighborhood, in Jefferson Co., increased his product in cheese one half above his neighbors. Some thought it owing more to the feed he gave than to the quality of his cows, but it was in the selection of his stock with care, and much good judgment as to the feed, that he was able to keep his stock in good condition during the winter as well as summer.

Much loss is experienced by dairymen not raising their own cows, as it is the general belief that it costs less to buy than to raise, and so it may be at first, but not so in the end. The dairies had been kept in bad state from this cause, but imported stock had come in. Very valuable stock had been imported by Brodie and Hungerford, of Adams, which were of great service.

Mr. Johnson—How does the Ayrshire stock succeed?

Mr. Eames—It is spreading and does well.

Mr. Johnson—The Ayrshire stock is remarkably fine for milking; is it not?

Mr. Eames—Yes; and there are also Durhams. He had raised a mixture of Ayrshire and Durham, which promise well.

Mr. Johnson—How much cheese do you average to a cow?

Mr. Eames—Not far from 300 lbs. The pasture last year, notwithstanding the drought, was better than in the previous year, as the grasshoppers did not affect the herbage. There had been a drought for about three years. The grasshoppers had almost made a famine. Their dairies had been revived by the September rains. In relation to the land for pasturage, about three acres were sufficient, two of pasture and one of grass, especially if the animals were kept off it, as stock will tread down half as much as they eat. He thought it a great fault with dairymen that there was such a wastage of manures.

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There was rising moderately a discrimination in the purchase of cheese, the good bringing more than the poor.

Mr. Eames said, cheese to be kept well must be thoroughly scalded, and worked dry, without this salt would not keep it for any length of time. When there is whey left in the curd it creates a bad taste. There may be too much whey, and cheese which undergoes this change is unhealthy.

The dairy business is increasing and extending. The Black river valley, the Southern tier of counties, all hilly regions, are favorable. It is extending in St. Lawrence and in Lewis and Jefferson. The land has not increased much in value, for there is a limit in the price of dairy land.

There has been a great improvement in the buildings for the dairy. Milking barns have been introduced, where the cows are tied up night and morning for milking, where the work can be done in all weathers. Ten cows are easier milked in the barn than eight outside, and the milk is cleaner. The work can be done there, when in the winter mornings, in the old way, it could not be done. The Welch make excellent laborers in the dairy, for they have generally followed the business at home, and are faithful.

The good milking qualities of the cow descend, and when there is a good milker the calf may generally be relied on to become such. The cross of the Durham and the native is better than the pure Durham. The cross of the Ayrshire and Durham is equal for milk. The Durham is better for beef. When near the large market of a city it is much more profitable to sell the milk than to make butter. About ten pounds of milk to one of cheese, the milk weighing about nine pounds to the gallon.

In the great cheeses exhibited at fairs there is no special benefit from the mere size of the cheese. In some places dairies are now conducted on the general system, of milk being brought to the manufacturing place, and a certain percentage of cheese returned.

Mr. Woolworth inquired the causes of fermentation or decay in cheese. Persons had been taken violently ill after eating

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cheese in this city, and it was supposed that arsenic had been used in its manufacture in order to prevent decay, but on analysis none could be detected.

Mr. Eames—Insufficient pressure, imperfect scalding, too much rennet, &c, are the chief causes of decayed cheese. Too much scalding lessens the weight of the cheese.

Mr. Joseph Harris remarked in relation to the quality of American cheese abroad, that he had seen American cheese in England, sell for a penny per pound more than the best Cheshire cheese. The Staffordshire colliers like it better.

Mr. Johnson said, that in 1851 he found in London, the best American cheese selling higher than English. Poor cheese, however, was a bad speculation for those who sent it to the English markets.

Mr. Osborn said that although he was not a practical dairyman of the present age, yet he could give some reminiscences of a by-gone time, in his boyhood, in that line of business in the world-renowned old Herkimer.

About the beginning of the present century his parents with their family settled in the town of Newport, in that county. The place was about eight miles above the village of Herkimer, and on the eastern slope of the Hassenclever hills, being the west side of the West Canada creek. It was then a wild woody region, requiring much labor to clear the land, and when cleared, from its broken surface and stiff soil it required also much labor to till it. In short, it was a hard country for new settlers. About the year 1808 a Mr. Daniel Day, from Uxbridge (Mass.), came into the neighborhood and purchased two hundred acres of land, and stocked it with some ten or twelve cows and from twenty-five to thirty sheep It appears the old man was in some way connected with a factory in his neighborhood down east, by which he was enabled to carry a certain traffic of farm products and factory goods. He generally came up to his farm twice a year with his team, bringing up these articles and taking back in return wool and butter and cheese. This appeared to be a prosperous business with him. In the year 1810 Mr. O. said his father moved on to Mr. Day's farm, and continued the business of wool growing and the dairy

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until 1813, when his father and his oldest son purchased the farm. Mr. O. remarked that he knew of no dairy in Herkimer county previous to the one above mentioned, and thinks it may be called the first that sent its products out of the State.

The *mode* of carrying on the dairy at that early time would now be regarded as peculiar, and in modern language, nomadic. There was the cheese press—a simple bench eight or ten feet in length, with a frame at one end for the lever, and then guides for this lever at the other end, and then another lever over these guides the other way to raise the weights on the end of the pry. The cost of this press was about one dollar. All the other utensils of the dairy were about after the same order. There was a constant strife between the cheese hoop and the churn which should have the lion's share of the cream. During the summer season, when there was some risk in making butter, much of the cream went into the cheese, and as cold weather approached, it was pretty equally divided; but late in the fall cheese was sometimes made of the pure sky blue, the classical name of which was "white oak." Whether it acquired this name from the resemblance of its color to that wood or from its toughness is uncertain. This article in those days stood forth as a comparison of things that were supposed to be of precarious values. But notwithstanding, it was still a cheese, and as its price was only two or three cents per pound, there were frequent calls for it in exchange. It frequently, however, remained upon the shelves during the winter, and as the foxes, said Mr. O., infested the neighborhood, and having heard that they could be successfully baited with toasted cheese, he procured a trap and furnished the bait in a style that would have satisfied an epicure; but reynard soon gave him to understand that his taste didn't run that way, and he was obliged to try his white oak on some of his more stupid cousins.

Dairying has produced many changes in Herkimer county, both as to the value of lands and the acquisition of money—the "materiel" itself. Not long since, said Mr. O., Jeremiah Corey, Esq., late sheriff of Herkimer, and who for many years kept an inn at Middleville, informed him that when the dairies were first started

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in the adjoining towns the farmers hauling away their products very frequently inquired of him who had money to let; but long since has the inquiry tended the other way—who wants to borrow money. It is proverbial that the dairymen in that county, as a body, are in most comfortable circumstances as to money.

A great change has also followed in the value of land. A large portion of the Hassenclever patent, which lay between the Mohawk river and the West Canada creek, was at that early day considered of but little value, especially the summit land. So late as the year 1816, or about that time, one thousand acres was sold for $5 per acre, and the bargain in a few years given up at that. Now that same land could not be purchased for less perhaps than $60 per acre; on it are established as good dairies as can be found in the county. In fact, the upland ranges, have under this branch of business, assumed a value nearly, if not quite, equal to that of the river bottoms.

Another great change also followed in the mode of manufacturing and vending the dairy product. From the old simple lever press followed all the variety of patent presses, and from the old dash churn a host have risen up to demolish this Gibralter of batteries. From the simple shantee of a cheese house there was the well-constructed building for wintering the late made cheese. In the transport of cheese, when they became numerous, instead of laying them carefully in the bottom of the wagon on straw, they made long casks in which the cheeses were placed, from this followed the cheese box, in which each cheese has its own casement. When the railroads were constructed and the article was relieved from a long journey on the canal in hot weather, the cotton bandage was introduced and the cheese boxed without the long process of curing; in fact the bandage soon became indispensable in the making of good sized cheese. The cheese house is now virtually abandoned as a repository; the cheese in a few weeks is hurried away to market after being made. Cheese buyers are now as plenty at the railroad depots as grain dealers were of old at the foot of State street in the city of Albany. On the receipt of the boxes at the freight houses each

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one is weighed and marked as to owner and weight, and a receipt given accordingly, and all to come out tally in the city of New-York.

No branch of industry pertaining to the farm has produced so great changes in that section of the country as the one above named. It was thought at one time, when the dairies were multiplying, that the business would be overdone. The fact has proved otherwise. The public taste for good cheese has kept pace with the increased quantity made, and no doubt reynard himself would relish the quality now made if he could seize upon it without too great a risk of life or limb.

We are led to inquire why the Herkimer county dairies have acquired such celebrity in the market. In addition to the superior quality of the cheese made in that county other extraneous matters may have had an influence. The amount made there in proportion to other places made an early impression. People at at one time looked to old Herkimer for cheese as to Genesee for wheat. That other places may make as good cheese, perhaps, may not be disputed, but whether the aggregate is of as good quality is questioned. There are some adaptations for good cheese making in that section that may not be common to others. Perhaps it may not be deemed a fine spun argument to say that the health and vigor of the cow tend to have an appreciable effect upon the quality of the milk. The upland ranges, the principal domain of cheesemaking, are proverbial for the health of man and beast. The atmosphere plays over them in its native purity, nor less pure are the springs and brooks met with there in great abundance. But above all is the quality of the grass the soil produces. It luxuriates as in a chosen spot. There is an adaptation for its growth in the composition of the soil. On the north side of the Mohawk river the soil rests upon the slate rock in a wide range. This soil is composed principally of the calciferous lime rock, the Trenton limestone and the slates, retaining to a certain extent the character of drift—that is a gravelly soil. It is a compact, tenacious soil, and is well adapted to the growth of grass. It is not over-charged with vegetable matter, which, though it may increase its bulk, does not improve its quality. It is a notorious fact that wheat raised on this soil will produce two

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or three pounds more of flour to every 60 lbs. than that raised on the bottom lands, and so it is with all the cereals; and even hay of equal bulk is heavier from the hills. This marked difference in the grasses becomes apparent in the quality of the dairy product. While the products of the dairy have become so general as a part of our food, and as dealers therein give them a constant test in determining their quality, it is not to be wondered at that a distinction should be made where one in reality exists.

In connection with this discussion, the following methods of manufacturing butter are given from some of our best dairymen:

E. R. Evans, Esq., of Marcy, Oneida County—Welch Method.

Milk is strained into pans, and remains 36 hours, and skimmed into pots with a small quantity of strippings, and stands until it becomes a little sour; churned with the old fashioned dash churn, operated by dog power. Milk is freed from the butter with the ladle, and without washing, as it is believed that much washing injures the flavor and the grain of the butter. Use the Ashton ground salt, and no other substance. The quantity of salt regulated by the dairy maid, not far from an ounce to the pound.

John Holbert, from Chemung County, formerly from Orange.

I take care to have my cellar thoroughly cleansed and white-washed early every spring. I keep milk in one cellar and butter in another. Too much care cannot be taken by dairymen to observe the time of churning. I usually churn from one hour to one hour and a half. I put from one to two pails of cold water in each churn, before commencing to churn, and one pail more in each when nearly done, in order to thin the milk, and make it produce all the butter it contains. When done, take the butter out, wash it through one water, then set it in the cellar and salt it, then work it from three to five times before packing. Butter should not be made quite salt enough until the last working. Then add a little salt, which makes a brine that keeps the butter sweet. One ounce of salt to a pound of butter is about the quantity I use. I pack the first day, if the weather is cool; if warm,

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the second day. If the milk is too warm when churned, the quantity of butter will be less, and the quality and flavor not as good as when it is cool at a proper temperature. I have always worked my butter by hand. Last fall I bought a butter worker, but I disapprove of its use entirely, and recommend the hand ladle in its stead. In packing, I fill my firkins to within two inches of the top, then lay a clean cloth on the top of the butter, and put salt on the cloth and keep it covered with salt and brine all the season. Great care should be taken not to let the milk stand too long before churning, as in that case, in hot weather, it becomes too sour, and the butter will be sour also, and in cool weather it becomes bitter; all of which can be prevented—in cool weather by putting about one quart of buttermilk in each pan or tub before straining the milk, and in hot weather by churning as soon as the milk becomes thick and moist on the top of the cream. I use the Turk's Island salt.

Orange County Butter.—The annexed is substantially the method of manufacture of butter designed for keeping and for foreign markets:

Perfect cleanliness and neatness in everything about the dairy, the *churning of the milk* instead of the cream, and the first quality of salt is used, about one ounce to the pound. The churning of the milk is deemed essential to butter intended for long voyages. It gives it a peculiar firmness and fineness of texture, and wax-like appearance, when fractured, which butter made by churning the cream alone seldom or ever has. There is a cream-like flavor, it is contended, to milk churned butter, which is not found in butter manufactured in a different manner.

Another Orange County receipt for making Butter (from Domestic Animals—by Allen.)

The practice is not to churn the milk until it becomes thick or loppered; the milk and cream is then churned together. The temperature of the milk is about fifty degrees. In warm weather a quart of cold water is put in each pan before the milk is strained, so as to keep it sweet as long as possible. The cellar floor is of brick; this, in warm weather, is daily cleansed with

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cold water; a drain carries off the water thus applied. The churn is filled about half full with milk, with the addition of two pails of cold water before starting the churn; in cold weather the same quantity of warm water is applied. When the churning is finished, which usually occupies about two hours, there are then two more pails of cold water applied to raise the butter and cool it.

The butter is then taken out of the churn and put in a large tray; this is immediately filled with cold water, and the butter carefully washed; after which the water is thrown off. The butter now undergoes the process of salting; it is then placed in a cool situation, where it stands about an hour, and is worked carefully over. This finished, it is placed in the same situation as before, where it stands three or four hours, and is again worked over—again replaced for five or six hours, when it is worked over for the third time. It is now replaced, where it stands till the next morning, and worked over for the fourth time. A small quantity of nitre is then put in the butter. Thus finished, it is placed in firkins holding about 85 pounds.

Previous to packing, the firkin is scalded with hot water, rinsed and cooled with cold water, then rubbed all around with fine salt—this prevents the butter from adhering to the sides of the firkin. When the firkin is full, a linen cloth is placed over the top of the butter; on this cloth a covering of salt is put, one inch deep, and cold water enough added to it to form a brine. It then stands till it is to be sent to market, when the cloth and salt are removed, the firkin turned down, the top of the butter in the keg washed with cold water, and the pickle drained off. The firkin is now neatly headed up and sent to market.

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AGRICULTURAL MEETING, FEB. 8.

BREEDING CATTLE FOR FATTENING.

Mr. Woolworth in the chair.

Mr. Johnson, Secretary of the Society, remarked that he would call the attention of the meeting to some of the most noted breeds of cattle in Great Britain that are fattened for markets. He trusted there would be gentlemen present who would be enabled to give all the necessary details of the process pursued in our own State in preparing cattle for the market. The description of cattle here given is taken mainly from Dickson's work on breeding live stock, published in Edinburgh in 1851.

Among the breeds which stand high in the English markets at Smithfield, *the West Highland cattle* from Scotland are among the first in quality and price of beef. This is one of the oldest breeds, and is yet preserved in its purity in the Isle of Sky and other western islands, and in the north of Scotland. Their hides are thick, but mellow in handling; the forehead broad, with tuft in center; fine muzzle, wide nostrils, bright and daring eyes, beautiful long turned up white horns with black tips, and manes like horses. They are remarkable for symmetry. The grain of the West Highland beef is very fine, perhaps excelling any other. They are taken to England, and fatten readily on the fine pastures in Norfolk, where they are most prevalent, and their meat finds its way to the private tables of noblemen and gentlemen. I should like to see these cattle introduced into this country, believing that a cross upon our native cattle at the north, where our winters are severe, would give us a very excellent animal that would with-

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stand our severe winters, and furnish most excellent beef. We understand some of these cattle were imported into Canada in 1852 and '53. A gentleman from western Virginia, who was in England in 1851, and who thought the cattle in his vicinity could not be excelled, went with me to Smithfield market. The black cattle were there in great force, and of remarkably fine quality; he said, "I give it up. This is superior to anything I ever saw."

Another Scotch breed, the *Galloway*, natives of the county from which their name is derived, are a very old breed, and bear a very high reputation in market, and are considered very nearly equal to the West Highlanders; and it is doubtful whether, being in equal condition, a Galloway or West Highlander will bring the highest price per stone in Smithfield market. This breed is hornless, and the color black, and for symmetry a first class Galloway can hardly be excelled. They have fine coats of hair, and thick and mellow in handling. In form they are round and barrel like, with wide backs, full loins and rumps. The crops are also full, and have little coarse beef; bone fine and flat, head well set on and rather fine, eyes prominent, muzzle fine, ears rather rough, and a tuft of hair on the brow, while some of them have manes. They have long been prized by the English graziers, particularly in Norfolk.

These cattle, as well as the West Highlanders, are generally kept until they are three years old before they are sold to the graziers, half fat, or what is termed fresh condition. The heifers of this breed, when fattened, are perfect models of symmetry. Mr. Colman, in his tour in England, remarked: "I think of this breed, that one of these animals having the head taken off would leave a perfect parallelogram, so perfect is the symmetry, This breed, would be a great acquisition to our country for particular localities, and some liberal friend of the farmer could do good service by introducing them among us." There are some other hornless breeds in Scotland, but are not generally esteemed equal to the Galloway.

Of the English breeds of cattle, the *Short-horns*, *Devons* and *Herefords* are the principal breeds of cattle for market. Of these

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the *Short-horns*—of which we have some as fine specimens in this country as can be found in Great Britain—are the leading breed, there being a much larger number of this breed and crosses from it than from all the others, fattened for market. They are yearly extending into new districts, and wherever the climate and feed are suited to them they become favorites as soon as introduced. This breed is superior in its early maturity and great aptitude to fatten, and for its symmetry and points of excellence, and are fed to great weights at an early age. Stock of this breed often arrive at maturity at two years old, and are fit for the butcher Their handling qualities are the finest imaginable, showing their aptitude to fatten readily, and this quality is indispensable for fattening animals in order to render them profitable. They are appreciated in this country, and the fine stock which is constantly passing through our city to our great emporium, to supply the weekly demands, from Ohio, Indiana, Kentucky and Illinois, shows the extent to which this valuable breed has been introduced, the best of these droves being Short-horns and their crosses. Our breeders have learnt that an animal that will mature in two and two and a half and three years, and give weight equal to a five-year-old native, is the animal best suited to them. And when the pastures are rich and luxuriant, and the winters not too severe, there is no breed that will pay as well as this.

An English butcher, in reference to this breed, says: "They are a large size at early maturity. In England the cows and heifers are worth more than any other kind for the milkman in the metropolis and other large towns. The best Durham oxen have thick, wide, fat backs, with a handsome frame and plenty of lean flesh, with heavy thighs, and generally, when made fat, weigh well at the weights they are laid at; they are longer than the generality of Devons and Herefords, and a great many Short-horns are as large and as fat at three years old as the Devons and Herefords at four. They carry plenty of tallow according to age, and the best of them have a fine silky grain, with marbled flesh. I find no beast comes to the scales better, with the exception of the thickset, lean-fleshed, short-legged, polled Scots. I consider the Durham cattle, take them all in all, the best breed for the

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farmer, or best breed for profit. When I speak of Durham I do not mean the coarse Short-horns."

The *Hereford* breed.—This is a very valuable breed, and may be classed next to the Short-horns, although the Hereford breeders in England contend that they are superior to the Short-horns. They are generally very fine mellow handlers, and soft mellow hides and close soft hair. But it is generally admitted in England, certainly so far as we could obtain information, that they do not arrive at maturity as early as the Short-horns, or feed to the same weights. This breed has been introduced into our State, and has given very manifest satisfaction. The beef of the Herefords is very fine, and commands, next to the black cattle, the highest prices at Smithfield.

The *Devons* are a favorite breed in England, and give remarkably fine beef, equal to the best Herefords. Many of the Devon breeders claim that they can make as much money upon them as can be made from the Short-horns or Herefords. They have been introduced very extensively into this country, and for beef, milk, and the yoke, are a very popular breed, and have probably been the means of improving the cattle in the Eastern States more than any other. They are very hardy, fat easily, though not as early as the Short-horns. They are to be found in all parts of our country, and are a most valued breed, and will continue here as in England to have their friends for their very admirable qualities. Where the winter is severe and the food not the most luxuriant, I think this breed can hardly be excelled. These are the principal English breeds which I think important to be introduced here.

Among what are termed *native cattle* at the North, the best I think are the New England red cattle, and my impression is that they were derived originally from the Sussex cattle in England. This breed, though "said to be a variety of the Devon, is evidently a distinct race; for although similar in color, these animals stand higher on their legs, and their bones and hides are not so fine; they are on the whole a coarser and heavier breed than the Devons, and get to greater weights." This description, I think,

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is applicable to the New England cattle, and upon these a cross of the Short-horns, Herefords or Devons will produce a fine animal for markets, securing earlier maturity and heavier weights with the Short-horns and Herefords.

It cannot be doubted that to make the feeding of cattle profitble in this State we must secure the breeds that will fatten at the earliest age and at the least expense, and to do this we must have animals of fine handling qualities, which are appreciated by every intelligent feeder, and the tough-hided cattle are rejected by our best *graziers*.

The quality of pasture best suited to feeding is a very important matter, after you have secured the animal you need; and here I would refer to the hon. gentleman from Steuben, Senator A. B. Dickinson, who has had much experience in that subject, and who is entirely familiar with the soil and grasses best adapted to this object.

As an evidence of the value of the Short-horn cross upon our native cattle, I would remark that during the past season I was in company with two young farmers of Dutchess county, one of whom had purchased a drove of grade Short horns for feeding for the New-York market. A neighbor purchased, at the same time, about an equal number of the common cattle of the country, averaging from one to two years older than the first. The first lot cost from $5 to $10 per head the most. They were fed and driven to the New-York market, the former realizing from $15 to $20 per head more than the other. It can be seen from this statement which was the gainer.

As to stall feeding, it is a question, I think, whether it can be pursued in this State, at present at least, with profit. We have Indian meal and oil cake, which are valuable for the purpose, but we do not as yet feel the need of manure so as to make that, as in England, an item in the calculation of profit. The time will come, however, when we shall be led to look at this matter in a different point of view. The English feeder calculates if he can secure the cost of his animal he does well, the manure enriching his land for the crops that are to fatten others, and often even he is satis-

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fied when he does not fully meet the cost of preparing the animal for market. Our farmers have not the facilities for securing their manure that they have in England, neither do they, with like care, apply it as it should be.

I will here give the substance of a prize essay on fattening cattle by George Dobits, in the Royal Agricultural Society's Journal, containing, as it does, many very valuable suggestions as to the selection and care of animals:

"The first point," he says, "is to have a good sort of bullock to begin upon, not to recommend," he says, "any particular breed to the depreciation of all others, because different localities require different descriptions of animals; but to caution breeders that it is right to select the characteristic marks of the breed they intend purchasing, to warn them particularly never to purchase a coarse, ill-made, bad-bred animal, because they may fancy it cheap. A man has never got so bad a bargain as when he has, as the saying is 'got too much for money.'

"The first criterion for judging of the disposition of the beast to fatten quickly, in my opinion, is that peculiar, soft, supple feel of the skin which is commonly called handling well. This is generally accompanied by hair of a soft, fine quality, in great plenty. The eye should be full and clear, and the head well formed; the shoulders not upright but lying well back; the chest full; the ribs deep, and well arched out; the flanks well down; the hips nearly level with the backbone, and in proportion to the rest of the carcase as to width; the rumps wide, and not too low down, appearing as if, when fat, the tail and rump ends would be level (but this the butchers in my neighborhood are in the habit of calling the fool's point); the purse should be of full size and soft to the touch (this I consider a material point), the twist good, and the legs short and small in proportion to the carcase, as the offal will be light in proportion to the leg bone.

"Next observe the temper of the animal; in selecting from a considerable drove you will often find beasts possessing many of these good points, yet in a lower condition than some of the animals of a worse appearance. Consider well whether this may not

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arise from the masterful disposition of the ill made one, and whether, when put to fatten where every beast may eat his share of food without disturbance, the good bred one will not soon surpass his more masterful neighbor. If you observe a beast that is constantly watching an opportunity of goring any other that comes in his way, leave him behind, even if he is much heavier than those you select; he may be a great trouble to you; and although the jobber may think you have selected them badly, he will sell them according to what they are worth at the time, and the present weight is the great point with him. For this reason always select the animals before purchasing, rather than agree to give a certain price per head to pick where you like from the drove."

"I think the quality of an animal is of more consequence than his form for common fattening purposes, but have both good if you can. But if you are thinking of fattening an animal to show for a prize, be sure to have his form as perfect as possible, for all the flesh you may lay on him will not hide any great defect in his form; also ascertain if possible how the animal is descended; ten to one but the progeny becomes similar to the progenitor. But this is generally a most unprofitable affair, and I strongly recommend all young farmers to leave it in the hands of those gentry who can afford the loss, many of whom there are in the country, and they deserve our best thanks for their patriotism, for it certainly shows the capabilities of different breeds, and thereby enables the observing farmer to profit by the experience of others. Never buy any animals that are excessively poor; they will consume a great deal of food before they are got into health enough to fatten, for, depend upon it, unless your animals are well bought, fatting cattle will never pay enough to *leave the manure clear profit*, which it ought to do, although I fear with the majority of farmers it is far otherwise."

"*Summer Grazing.*—I shall say but little with respect to summer grazing, as the wording of the Society's advertisement appears to apply more particularly to winter fattening; merely remarking

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that the fences should always be kept thoroughly good, a weak place being strengthened before it becomes a gap—prevention, in this case, like many others, being better than cure; that the bullocks should be well supplied with water, and have plenty of shade; never allow them to be frightened by dogs, &c.; treat them kindly, and they will soon cease to fear your presence; do not let a day pass, if you can help it, without seeing them. There is an old saying which ought to be impressed on every farmer's memory—it has been of great service to me in the course of my life—it is: "The master's eye grazeth the ox." A friend of mine has lately adopted a plan, which, under the same circumstances, I should strongly recommend—it is that of giving a small quantity of oil cake to animals grazing, for the sake of improving an ordinary pasture, and its effects are astonishing. The pastures I allude to are small, and one or two bullocks more than they are calculated to carry are put into each; the lot are then allowed 4 lbs of cake per day per head; this, at a cost of about two shillings per head per week, which I believe the stock well paid for, has entirely altered the face of pastures from what they were three years ago, when the plan was first adopted by him, and I believe without any loss to himself."

"*Winter Feeding.*—I now come to the point of winter feeding. *First*, as to the places in which they are kept, I unhesitatingly give my opinion in favor of stall feeding, for all the common purposes of grazing, but not for young beasts that are to be summered again, or for prize oxen; the former should have small well sheltered yards, with good sheds—if the fences are so high that they cannot see over, it is much the better; and the latter, loose boxes, with plenty of room for them to walk about, because they have to be kept up for such a long period, that, if no exercise were taken, the health might suffer. It is the abuse of stall feeding that has got it into disrepute with some people, and the not treading down straw enough with others. This last I hold to be an advantage, instead of a disadvantage; for, depend upon it, it is not the size of the dunghill, but the quality of the manure that causes the farmer's stack yard to be well filled. If managed

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well, I contend that there is no plan so good as stall feeding. The fattening house may be of any size or shape, but it is necessary that there should be underground drains, with gratings, to carry off the urine into the liquid-manure tank; shutters behind the bullocks, to regulate the heat, and a wide passage at their heads to feed them and clean their mangers. The advantages I conceive to be the quantity of litter required being smaller, therefore the muck being made better—the temperature being more easily regulated, and every bullock being allowed to eat his share in peace. The disadvantage of the animal not being able to rub himself as well, I consider fully done away with by the rough brush which you will observe I recommend using, and although theorists may fancy the health of the animal likely to suffer, I have never found it so in practice."

"Now with respect to their food, so much does this vary (from the plan pursued by some people with an ox intended to be shown at Smithfield, in a class restricted from corn, cake, pulse, &c., &c., *which has the cream from several cows given him* by way of compensation, to that by the man who endeavors to fatten his animals on turnips and barley straw,) that it would take up far too much of the Society's valuable journal even to enumerate them. I shall, therefore, simply give the plan I recommend, leaving my readers to follow it if they like, and improve upon it whenever they can:"

"I think in many instances stall feeding is not commenced early enough in the autumn. As soon as the weather becomes damp, and the days shorten much, say some time in October, the grass in my neighborhood loses its feeding properties, and then the sooner your bullocks are put up the better. For this purpose, I recommend having some of the large forward descriptions of turnips provided, perhaps the "red tankard," although watery, and soon becoming of little value, are at this very early season the best of any, from their early maturity; these are sown in April, at the rate of an acre to every eight bullocks, which will last them three or four weeks, according to the crop, and leave a light fold to begin the sheep upon; at the end of which time the for-

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ward Swedes are ready to begin. During this period I give them little or no oil cake, if they are only in moderate condition; but they have half a stone of pollard a day, mixed with an equal quantity of hay or straw chaff. Some persons may fancy this food is of too loosening a nature, but I can assure them, from several years' experience, that although pollard is loosening itself, yet it has the effect of preventing the watery white turnip from purging too much. Although the bullocks do not gain much in weight during this time, yet I am satisfied they go on faster afterwards—the reason of which is, I suspect, that their bodies are more prepared for the artificial state they have to live in for the next few months. Early in November the food must be changed to swedes, cake, &c., the quantities of each must vary according to circumstances; the following I consider a good allowance where swedes are not scarce, if they are, more oil cake must be given instead of a part of them, or if very plentiful, they may be allowed even more: The morning's bait, one bushel of swedes, well cleaned from dirt and cut small, given a few at a time—then, the refuse pieces being well cleaned out, a dry bait consisting of 2 lbs. of oil cake, 3 lbs. of pollard and a little hay chaff. While they are feeding, the manure and wet litter must be well cleared away, and any which may be on the bullocks taken off, the floor swept clean, and plenty of fresh litter put in; then have every bullock well brushed with what is called a dandy brush—being a brush made with whalebone, for taking the rough dirt off of horses. (Let no slovenly farmer fancy this to be a whim of mine; depend upon it, the bullocks are kept in much better health and greater comfort for it.) They must now be left quiet; they will soon lie down and rest, and chew the cud till after dinner, when another bushel of swedes is given as before, in small quantities, followed by a similar dry bait of cake, pollard and hay chaff, but with the addition of 3 lbs. of bean meal—this is left with them at night. Be careful that the shutters are opened or closed, according to the weather, so as to maintain an even, warm temperature—but not hot enough to make them perspire, if it can be avoided. Be also careful that the mangers are well cleaned out between every bait. I have mine

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cleaned at the commencement of the season, and as often afterwards as I think necessary, with scalding water and the scrubbing brush."

"After a month or so the cake may be increased, and, if it is thought more convenient, the swedes may be changed for mangold wurzel. Many persons object to using mangold until the spring; they certainly are more valuable than swedes in the spring, and, therefore, should always be used last. Never change from mangold wurzel to swedes, after you have once began them, or the bullocks will not go on so fast; but if, from having a bad crop of swedes, or from any other cause, you want to begin mangold early, you have only to lay them exposed to the air for a week or two, to wither, and they may be used as early in the season as is required."

"It will be observed that cleanliness, warmth and quiet, are the great points I insist upon, of course coupled with good feeding; but very many tons of oil cake are annually wasted, because the comfort of the animals is not more attended to. It will also be observed that I have introduced a cheap article of food, which, I think, does the beasts more good, in proportion to its cost, than anything I give them; I allude to pollard, or miller's offal, as some call it. This I generally purchase at £4 15s. a ton. I have used it extensively for some years, and like it much. Some of my neighbors are now following my example."

"Before I conclude, I wish to give these recommendations respecting selling the bullocks when fat: Do not determine upon parting with them exactly at a given time; but if a butcher wants to buy a part of them, a few weeks before you think they are ready calculate how they are paying for what they have eaten—and, if you feel satisfied on that head, do not run the hazard of getting a bad sale by refusing a good offer, or perchance the opportunity may not return. Sell them to butchers at home if you can. Always estimate the weight and value of your bullocks the day before any one is coming to buy them; and, after letting the butcher handle and examine them well, let them out into a yard for him to see—they will always show better than when tied up."

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It was expected that the Hon. A. B. Dickinson, of Steuben Co., would have followed with an account of the method pursued by him and others in this State in fattening cattle for market. He was unexpectedly called from the meeting. At the annual meeting of the Society he gave a very full and interesting statement of the process adopted, and it is to be regretted that we have not a report of his remarks.

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PRIZE ESSAY.

A TREATISE ON PRACTICAL HUSBANDRY.

BY WINSLOW C. WATSON.

(*Premium, one hundred dollars.*)

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PREFACE.

The limited space to which I have been restricted, in the preparation of the following work, has compelled me to present it in the form of a mere summary, rather than that of a methodical treatise.

The object of the Executive committee, and my own plan in conformity with it, contemplated a brief, but distinct explanation of the various processes connected with the tillage and management of an ordinary farm. In the execution of my work, I have proposed, no literary display; but have endeavored to exhibit my views in a plain and simple style, and in the homespun and familiar language of the farm. As much as possible, I have avoided the use of technical and scientific terms, and the agitation of speculative opinions and controverted theories; and have designed to commune with the farmer, upon topics of mutual interest, in a manner that all may understand.

It would be presumptuous in me, to attempt to instruct or enlighten, the matured and scientific agriculturist, but I may be allowed to cherish the desire of facilitating the labors, and guiding the operations of the young and inexperienced farmer. . .

The calamities and revulsions which have fallen upon numerous other occupations, must necessarily impel men, from the marts of

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trade and manufacturing pursuits, into the labors of agriculture. Many of these persons will embark in husbandry, in comparative ignorance of its duties and practices. I have flattered myself that a work of the character prepared, simple, comprehensive and practical, published under the high endorsement of the State Society, might possess to such persons, some value and utility.

I am far from assuming, that the portraiture of correct and judicious tillage, which I have attempted to present, is an exhibition of my own practices, but, with a deep conviction of their existence, I have endeavored to use my personal omissions and defects, as beacons in guiding the course of others.

Embarrassed, as I have been, by the brevity, with which I have been compelled to treat a vast subject, I fear it will be found that I have often failed, to communicate my views with sufficient perspicuity and intelligence.

Upon points of doubtful and disputed opinions, I have intended to present briefly, but clearly, the different views entertained, without usually advancing my own sentiments. Whenever my personal opinions, appear to conflict with others, my purpose uniformly, has been to represent such opinions in that aspect.

In the preparation of most of the articles embraced in this treatise, I have been governed by the results of my personal experience and observation. In other cases, I have sought light from the most approved and reliable sources. Although, I cannot hope to receive a universal acquiescence, in all the principles and practices I have recommended and endeavored to enforce, it is proper for me to state, that I have studiously labored to make my conclusions conform to the highest authorities, and to that end, have tested the accuracy of my views, by a careful examination of standard works, and by a comparison of my own opinions with those which they establish.

My ambition will be amply gratified, if I shall in any degree, succeed in promoting, the great and momentous interests of our agriculture.

W. C. WATSON.

Port Kent, Essex Co., N. Y., 1855.

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THE FARM.

The selection of a spot where the farmer intends to establish his homestead, is a matter of no secondary importance to his future success and happiness—yet no general rule can be prescribed for his government. He must, in a great degree, pursue the guidance of his own judgment, which will necessarily be influenced by various considerations. His pecuniary circumstances, his tastes, habits and designs, should all enter into his calculations.

No judicious man will incur, in the purchase of a farm, liabilities beyond his means, which must fetter and harrass all his subsequent operations. Here lies the fundamental error of many an American farmer, who, without an adequate capital, purchases a large and expensive farm, hoping by a slavish servitude, unremitting toil and skinning processes, to meet his engagements. The consequence of this policy is a life of labor, often fruitless and unavailing, land insufficiently cultivated, and failure and disappointment in the end. The desire of calling wide spread acres our own domain, to acquire the dignity of a freeholder, is an instinctive passion in almost every American breast. The sentiment is ennobling and worthy of freemen, but its excess is injurious to the character and prosperity of our agriculture. The great defect in our system of husbandry, is the prevalence of excessively large and unwieldy farms.

Individuals whose pecuniary ability would scarcely enable them to conduct a farm of fifty acres, are found in the occupation of territory embracing hundreds. The labor and means which might be eminently successful when devoted to the former, are insufficient and profitless, when diffused over the latter. While he industriously attempts to improve the whole of the larger tract, little permanent or tangible benefit is applied to any portion of it. Manures which, appropriated to a small area, would secure remunerative crops and enduring fertility to the soil, are spread over fields so broad, that they produce no profitable or abiding effects. Disbursements expended in erecting unsubstan-

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tial enclosures upon a large farm, would well and efficiently fence one of small dimensions. While the occupant of the former, is constrained to witness his broad acres unimproved, his swamps undrained, his crops wasted from incompetent protection—the owner of the latter exults in abundant harvests, and rejoices in the contemplation of the advancement of his farm, in productiveness, value and beauty. Let the farmer of limited means, restrict his ambition at the commencement to a small farm, within his capacity. Upon this, with industry and perseverance, he may be assured of competency—while a wide territory will entail upon him debt, embarrassment and ultimate disaster. This truth cannot be impressed with too much earnestness, nor be too highly appreciated.

The branch of husbandry intended to be pursued, should enter prominently into consideration, in deciding upon the selection of a farm. If the primary object is tillage, then the land should be peculiarly adapted to that purpose; if the dairy, a different location may be chosen; if grazing and wool growing, a still different and cheaper farm may be appropriate. The diversified territory of our country, presents sites pre-eminently congenial to each of these designs.

I propose to notice the special advantages of these departments of agriculture, their adaptation to varied soils and locations, in their appropriate connection.

The propriety of regarding healthfulness, in selecting the situation, will address itself to the judgment of every man, who is not improvident or reckless. Much of subsequent suffering and calamity, may be avoided by prospective vigilance and caution in this respect. In determining between a northern and southern, or an eastern and western abode, a careful regard should be observed of individual habits and peculiar constitutions. Happily for the progress of our country, the facilities of trade and intercourse are so universally disseminated, that few localities exist which are not connected with a domestic demand, for all the products of agriculture, and easily accessible to a foreign market. Still, these advantages should be contemplated as an essential element in the value of a farm.

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The accommodations of water and the supply of wood, should always be considered, and in clearing a new farm, the latter object should be studiously kept in view. I may here remark, that a tract of land most appropriate from its position and arrangement, should early be selected and devoted to this purpose, and preserved as a permanent resort for fuel. Much future inconvenience may often by this course be avoided.

Individuals will be favorably or adversely inclined, and be governed in their choice of soil, by their own experience and habits. Each variety of land is distinguished by its particular advantages, and usually possesses its objectionable characteristics. Farms, embracing earths of a different nature and qualities are the most desirable. Those described in popular language, as loams, are best adapted to general culture. Formations of clay and sand, when lying contiguous, may be immensely improved by an application of each to the other. This fact is important in estimating the value of these lands, and to this system of fertilizing, I shall again advert.

Farm buildings.—The barns and out-buildings are of the first consequence, equally as they affect the value of a farm, the reputation of the occupant, his prosperity, and the comfort and security of his stock. The former should be tight, and securely built, convenient in its arrangement, and sufficiently ample in size, to contain all the hay and grain produced by the farm. The bays and lofts should be so constructed, as to avoid all unnecessary labor in housing and removing the contents. When the edifice is of unusual dimensions, it should have different accesses to the mows, either by floors or windows. If, however, the necessities of the farm require extraordinary room, an increase of barns is usually expedient, from motives of convenience and safety, rather than the erection of huge and unmanageable structures.

The thrashing floor should be perfectly tight, with sides securely closed. The common approach to it should be by small doors. The double doors of the barn, will be much preserved by

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being moved in grooves upon rollers. It is convenient to have stables in the barn, connected with the large floor by small doors, well secured.

Sheds, whether open or closed, should be contiguous to the barn, and so arranged as to form, as far as possible, yards either entirely enclosed, or presenting a southern exposure, with high and tight fences. The yard should be so divided as not only to separate the different kinds of animals, but that the distinct classes, the old and young, the feeble and strong, may each occupy their respective enclosures. Thus situated, they will thrive better, and be less exposed to injury.

Economy, as well as compassion, admonishes the covering and protection from inclement weather of every animal. None can be exposed with impunity to the rigors of a northern climate. Feeding in an open yard produces a great waste in fodder, by its being scattered by the wind, or trampled in the mire. Exposure to cold requires a great increase of food to maintain the animal warmth of the system. Yarding cattle at the barn, secures the consumption of chaff and other refuse of the thrashing floor, which cannot readily be removed, and which, under other circumstances, would be worthless.

The presence of water in the stock enclosure, is of the highest utility. A great saving of manure is thus effected, and the animals are preserved from various exposures to injury. Many valuable cattle, are annually lost by accidents resulting from the want of this convenience.

It is also advisable to carry the water by conduits into the yard, rather than by a running stream. A vast amount of liquid manures, will be washed into the latter on the occurrence of every rain or thaw, and lost to all useful purposes. The farm-buildings, if convenient, should be placed upon a level space shielded from the winds. If necessarily situated on a descent, they should be so arranged, as to expose as much land as possible to the drenching of the yards. Where a natural hollow does not exist, it should be formed in the center of the yard, and rendered impervious to water by a coating of cement or beaten clay. This, as I

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shall explain, will constitute the great and valuable manufactory of manure.

Although warmth is a superior object in constructing a stable, sufficient light must be secured to preserve animals, particularly the horse, from an injurious affection of the eyes, sometimes produced by a sudden transition from darkness to the brilliant light, reflected from the snow of a winter's sun. Thorough ventilation is another important requisite of a proper stable. The floor of the stable should be tight, so as to promote warmth and to prevent the escape of the liquid manures, and should incline outward. The excrements and wet litter, should be removed once, or better twice, daily. Cleanliness promotes both the comfort and thrift of animals, and by vigilance in this respect, they escape the effects of the acrid gases, which are evolved by the manure, and their bodies and legs are not made damp and foul by contact with the dung.

When a farm contains a large stock of neat cattle, it is the most convenient and economical plan, to arrange them in stabling in double rows, their heads facing each other, with a passage between for the conveyance of fodder. This mode affords a free ventilation and a facility in foddering. The passage should be connected by a short and easy access to the deposits of hay, roots and stalks. Each animal, should be accustomed to occupy uniformly the same place.

Corn Crib and Granary.—Every farm appropriated in any considerable extent to the production of grain, requires this convenience. It is advisable to erect it near, but a little removed from, the barn. Let it be placed upon posts elevated eighteen or twenty inches from the ground, and surmounted by flat stones projecting far enough, to prevent smaller animals passing over them. One side may be constructed of open lattice work, for the storing and drying of corn in the ear, and the remainder be appropriated to close covered bins for other grain. A small thrashing floor may occupy the center, if the farmer is so improvident as to pursue the old mode of shelling the corn, instead of using a machine. The smallest farmer, can scarcely afford to be without one of these

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cheap and most efficient implements. This building, or some other secure apartment, should be made the depository of tools, and a shed be devoted to the protection of vehicles and the more ponderous utensils. Implements decay more rapidly, from exposure to the sun and weather, than in the ordinary labor of the farm.

Poultry should be accommodated by an exclusive apartment. When permitted to range over the unthrashed grain, and to befowl the hay and straw, they waste much more than they produce. The appropriate arrangement of the pig stye, is far from being an unimportant affair in the economy of a farm. I will here only remark, that its sleeping pen for the cold and inclement season should be warm and shielded, with the floor descending from it, or with a second one, slightly raised to carry off the fluids, or to protect the animal from them. The stye should have access to a yard for summer convenience. An arch, with a caldron, may be erected at an accommodating distance between the dwelling and piggery, and will be found of great convenience, as well for soap making and other domestic purposes, as for swill boiling. Any person of ordinary ingenuity, can construct one of common stones and mortar. A length of old stove pipe forms an excellent chimney for this structure.

The Dwelling.—A fitness should exist, between the character of the dwelling-house and the size and resources of the farm, and the means of the occupant. Farms without number, have been swallowed up by the investment of too much capital, in the purchase or erection of unsuitable edifices. Let the farm-house be always neat and commodious, but never beyond the ability of the farmer. As wealth or competency rewards his labors, comforts may be increased, and even elegances indulged, but a false and baneful pride is exhibited by a progress in this course in advance of prosperity. It is far wiser, to strain our means in the erection of the appropriate out-buildings, than to yield to extravagance in our dwellings. An ostentatious house, upon a farm, surrounded by inferior and insufficient barns and sheds, is always a reproach. A well arranged and spacious cellar promotes immensely the comfort and convenience of the household. A vegetable garden,

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adorned by fruit trees, and embracing many perennial plants, and protected from the inroads of cattle, should be universally attached to every farm house. It may be cultivated with little intrusion upon the labor of the farm, and always wil be found, a source not only of health and profit, but of pleasure and amusement. Nor should the flower border be forgotten or neglected. Who, as he contemplates this "poetry of nature," shedding its fragrance around the cottage or farm-house, however humble, does not feel his respect and trust in its inmate, quickened and enhanced? It is not a mere poetical fancy, that the honey suckle and climbing rose that cluster around the porch, endear his dwelling, but every man, in the enjoyment of these beauties and their associations learns to love and cherish his home. Ornamental and shade trees should surround the dwelling and border the highway fences.

Fences.—No event in the management of the farm, requires an exercise of more judgment and forecaste, than a judicious arrangement of fences. The disbursement in this necessary labor, is an immense item of the first and, indeed, annual expenditures upon a farm. The appropriate division of fields, the materials used in forming enclosures, and their construction, must be determined by existing circumstances.

The thorough and careful repairing of fences, is among the first duties of spring. To perform this work imperfectly, to leave them partly built, or with holes and openings unsecured, is to train and stimulate stock into habits of mischief and insubordination. If, at the opening of the season, when they are feeble and easily controlled, they are perfectly restrained, the habit remains, but if they are permitted to range over half-built fences they soon become so unruly, that no enclosure can secure crops from their depredation. Few farmers are conscious of the great losses, which are annually incurred from this cause. Bad fences educate mischievous cattle, and in most cases their habits are formed by bad management, rather than the result of their instincts.

Red cedar, white cedar, chestnut, butternut, ash and some of the oaks, are the best timber for rails, and their relative value may probably be estimated as they are enumerated. Many other species

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of timber, are esteemed for this use. The cedars, chestnut and butternut, are also the most enduring and valuable for posts. The locust, is very important for these and many other purposes; has a most rapid growth, and may be cultivated with ease. It seems well established by satisfactory experiments, that, placing the post in a reversed position, or in other words the original top downwards, is a great preservative of timber. Charring the end, surrounding it with salt, charcoal or ashes, and soaking it in solutions, much augment its durability. Among these solutions are strong brine, blue vitriol and chloride of zinc; one pound of the vitriol is used to forty pounds of water, and three pounds of the chloride of zinc to a barrel of water. In a new country, where timber is not only abundant, but an inconvenience, log fences, particularly of white pine, are both effective and enduring. Timber decays much more rapidly, when exposed to the moisture of a forest, and hence, as well as from the greater risk from fires, it is not expedient to incur in that situation unnecessary expense in the erection of fences. A pole fence skilfully constructed, is the best and cheapest. The Virginian or zig-zag fence is in general use, and very secure and convenient. The great objection to it, is the large tract of land it occupied, to the exclusion of tillage.

Several modes have been introduced, founded upon the general idea of this fence, which I regard as improvements upon it. Either of the following is very permanent and effectual. At each junction of the lengths of rails, place two posts, bored horizontally by a two-inch auger and at about three-fourths of the proposed height of the fence, lay the rails up to this point, then introduce a pin of enduring timber through the holes, place the remaining rails above, and finish the work by driving the posts together so as to completely bind the rails in their position, and secure them by wedging the pin. In the other mode, substitute stakes rounded and smooth, for the posts, sharpen them at the top, and slip over them a cap with two corresponding holes, after all but the upper rails are laid, and let these rest on the cap. The stakes should be of sufficient length above the fence, to allow of their being driven down after the bottoms have decayed, without deranging the fence or caps. In both of these modes, the rails should be laid so as to form a slight angle, in order to prevent their slipping down be-

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tween the stakes or posts. When skilfully built, these fences cannot be thrown or blowed down, while the upright supports stand, and are displaced by hand with difficulty.

All things being equal, I think board and post fences less useful and permanent, than those constructed of rails. The former expose a greater surface to the action of the wind, are more easily broken and deranged by cattle, and especially after the nails have become loosened, they are more liable to be defective. Upon wet lands, they are peculiarly exposed to the effects of frosts. In obvious instances, however, they are to be preferred.

A heavy mound formed by the excavation of a trench, and covered by the turf, is a very desirable and lasting enclosure on springy and heaving land. If necessary, let it be surmounted by a rail or board secured by posts or stakes. This constitutes a valuable and suitable fence, and accomplishes another important improvement, by the drain it creates.

Stone walls, upon tracts where rocks abound, afford the most perfect and substantial enclosure, the material of which never decays. Their erection effects two desirable results—securing the best, and in the end the most economical of all fences, and relieving the land from a great incumbrance to husbandry. An imperfect and insufficient structure, which may be prostrated by cattle pressing against, or even sheep scaling it, should be avoided. Let its foundations be massive, at least three feet in width, and carried up double to the top. When built on soft ground the base should be laid in a trench below the action of the frosts, or on a ridge five or six feet wide, thrown up by a plow or spade. Walls should only be erected upon external lines, or where on mature deliberation a permanent fence is decided upon. If poles running horizontally along the top are found ineffectual to arrest sheep, this result may be perfectly attained, by placing poles or rails on the side, and parallel to the wall, upon crotched sticks, elevated about two feet from the ground, and removed about ten inches from the wall. This contrivance is a complete barrier against sheep.

Hedges and wire fences, are scarcely yet adapted to the wants or purposes of the American farmer. The former constitute a

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beautiful and picturesque feature in a rich and level tract, and in many situations may be found a valuable improvement. Various plants are used for this object, among them the Buckthorn is highly esteemed. Many indigenous shrubs, such as the Osage orange and the thorn, are well adapted to it. If the experiment is contemplated, those who raise the plants for sale are able and prepared, to give all requisite instruction for their culture.

A few hundred of supernumerary rails, will prove exceedingly useful upon every farm, and peculiarly so, where a mixed husbandry is pursued, to be ready for emergencies, which may require the erection of temporary fences, as in the division of fields for the separation of stock, or for incidental culture.

Plowing.—This process, in the absence of the spade, is the basis of all husbandry. Few operations upon the farm should be conducted with greater skill and judgment, and yet scarcely no one is accomplished with less care and science. Defective or insufficient plowing, must necessarily result in failure or disappointment. It is in vain for the theorist, to attempt the enforcing of arbitrary and unyielding laws, in reference to this or any other process in agriculture. General principles may be established, and should control, except as they are modified by the peculiar facts of varied cases.

Deep plowing, and at each repetition progressively so, may be recognized as a cardinal rule, but even this must be qualified. The condition of the earth, and the peculiarities of the soil, must be regarded in its application. Every plowing of old and thoroughly subdued land, should be deeper than the last, and turn up a fresh soil to the fertilizing influence of the elements. When the surface embraces masses of noxious and sour vegetation, the plow should penetrate so radically, as to cover totally all their growth and extinguish their vitality. Let the plow run deep enough to sever, and if possible destroy the roots of these plants. The soil thus brought to the surface, may not the first season be profitably tilled, but it will be exposed to the influence of fertilizing agents, while the organic matter will be decomposing beneath and preparing for future usefulness, and an essential process for subduing the land be accomplished.

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Ground intended for corn can hardly be plowed too deep, unless a large mass of cold and sterile subsoil should be exposed to the surface. If there exists a sufficient vigor in this soil to sustain the germination and early growth of the corn, the widely diffused and penetrating roots of this plant, will seek and derive sustenance from the vegetable decomposition, and manures deeply buried; but plants whose roots enter the earth only superficially, will not be equally benefited by these circumstances. The chief results proposed by deep plowing, are to increase the permeability of the earth, to deepen the root bed, and to reveal a new soil to the effects of the atmosphere, heat and frost. Hence, damp, sour and acid earths, should not be turned up by one plowing, to an extent that prevents its being reached and fertilized by these influences. The operation of this system on these lands, should be more gradual, but constantly advancing; nor should an excess of harsh, cold, gravelly subsoil or hard pan be brought up. If in either of these cases, a vegetable mold or turf is buried deeply beneath this covering, it will scarcely decompose, nor will the roots of most of the plants adapted to such soils, reach the deposit, even if they should decay and ferment, while the materials brought to the surface will be nearly worthless for cultivation. Trench plowing, is often met by the strong objection, that it produces these results. Under judicious management, and proper circumstances, I regard that system as effecting the most decided benefits.

The Michigan plow, is a highly efficient implement, where skillful and perfect deep plowing is contemplated. The introduction of the subsoil plow, has obviated many of the objections to deep plowing, and will accomplish most of the advantages proposed by the tillage. It penetrates the bottom of the furrow, tears up and opens the earth, without raising the sub-stratum to the surface.

The operation of this plow, by increasing the depth of the soil, creates a more extended bed for the dissemination of the roots of the delicate plants, whose tender fibers, have neither vigor nor habit to penetrate the firm subsoil. Here, they reach new pabulum for their nutrition, and are secured, by the greater depth they acquire, from the effects of drought and heaving frosts. This plow, in its operation forms a conduit, by which the superficial

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water is carried off, and opens the earth to the ascent of moisture from beneath, which, in periods of dryness, is attracted towards the surface. The sub-stratum thus opened, is made permeable to the heat and air, is relieved of its acidity, and is prepared to be brought with utility to the surface, by the next plowing. When this occurs, let the subsoil plow be again used, and a new stratum of earth, will be made ready for the succeeding operation. By pursuing this system, any required depth of soil may be attained, without alarming the prejudices against deep plowing. In a climate marked by excessive heat and droughts, the beneficial results of this tillage are obvious, and its application cannot be inculcated with too much earnestness. The subsoil plow is adapted to every variety of land. Even on sandy soils it may be applied with advantage. The observing cultivator of this land will notice, that the successive plowings of several seasons have formed, where the earth has been plowed at a uniform depth, an incrustation at the bottom of the furrow, produced by the passage of the plow and the trampling of the team. This formation soon becomes impenetrable, to the tender roots of plants and moisture, and crops often suffer severely from this circumstance in dry seasons. The action of the subsoil plow, breaks up and removes this obstruction.*

Guided by these general rules, which I believe comprehend the received views on this subject, every man can form his own conclusion, keeping in mind the prominent idea,—to plow as deep as existing circumstances will admit.

The preference which is to be given to fall or spring plowing, remains among the controverted questions, with intelligent agriculturists. In the autumn, it is urged, teams are in more vigor, and the duties of the farm less pressing; that low and moist lands are at that season in a better condition for breaking up; that strong, stiff and adhesive soils will thus be more exposed to the influence of the weather, and undergo, by the action of frosts and rain, more thorough disintegration; that coarse and sour herbage

* This fact is familiar to every intelligent cultivator of sandy lands, and is peculiarly illustrated, in the condition a garden occupying this soil attains, after a cultivation of several seasons. The incrustation referred to in the text, frequently becomes so firm and resisting, as to be penetrated with difficulty by the plow.

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torn up in autumn, with their roots exposed upon the surface to the elements, are more successfully destroyed, while if plowed in the spring, numerous shoots not unfrequently, sprout from the broken fibers of these plants; that the eggs and larvæ of worms and insects displaced near the approach of winter, and subjected to its severity, are killed. It is objected to fall plowing, that, when it is adopted, the earth loses its freshness and permeability, and becomes consolidated, and that the gases and vegetable matter are evolved or drenched out and lost. This objection is applied with peculiar force to light soils and those occupying declivities. Many advantages, I think, of a decided and permanent character, are secured by autumnal plowing of the lands first enumerated. When the surface is formed by a heavy turf or rank vegetation, and inverted in the fall, these materials reach in their process of decomposition, the state in which the fertilizing elements produced by fermentation are the most valuable, just at the period, when the young plant most requires their influence.

In warm and light soils, this process commences earlier, and the same results, therefore, are attained by spring plowing. Heavy green sward should, as a general rule, be plowed in the fall. It is advisable to plow lands in fine tilth in the spring, particularly where manures are to be turned under, or have been covered in the preceding season. These earths should be occupied by the crops, as immediately after plowing as possible. Sands are not injured, and may be, perhaps, benefited by being plowed in a moist condition, but other earths, should be plowed when nearly dry, although a slight degree of moisture facilitates the process. When perfectly dry, clays become baked, and are almost impenetrable by the plow. The width of the furrow slice, must depend upon the depths of the furrow, and the size of the plow. A range from nine to fifteen inches, may be adopted as the proper criterion. On old lands a narrow slice most efficiently pulverizes and mingles the soil. The furrow slice on sands, should be laid flat, as a compactness of the earth is desired—but on most other lands, and strictly so when they are heavy and adhesive, it should be turned over at an angle of about 45 degrees. This mode, presents a double surface to the influence of the elements, and renders the soil lighter and more friable. The furrow should be straight, and

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of an uniform width. No balks are to be tolerated. The slice should be totally separated from the land and, completely inverted, so that no grass appears. A second or cross plowing, is often advisable to more effectually pulverize the earth, but not on green sward until decomposition has taken place. Several advantages are produced, by commencing in the centre of a land and turning the furrow inward. No unsightly dead furrow remains at the close; an embankment is not formed by repeated plowings parallel to the fences; the sides of the land are left clean and neat, and the earth is not packed and its lightness destroyed by the trampling of the team at the extremities, as in plowing out they constantly tread upon the unplowed land. Wet and porous lands should be thrown into ridges, and raised by back furrowing every alternate slice. The "fin point" is a highly efficient improvement to the plow, when used on green sward lands, and those infested by bushes and roots. The coulter pierces the earth superficially, but this point, cuts through all ordinary vegetable obstructions, the entire depth of the furrow.

The Harrow.—The operation of harrowing is a simple process, but it is often performed with less care, than its importance demands. It is not necessary merely to level the surface, but the earth should be perfectly pulverized. It should not be dragged when wet. Unless the soil is in a very fine tilth, the harrow should first traverse parallel with the furrow—otherwise there is risk of bringing to the surface, the turf and vegetable matter buried by the plow. Where the land is new or rough, and such as requires an unusual amount of dragging, much of this labor should be performed before the grain is sowed, in order to avoid burying the seed too deep for vegetating, by the action of the harrow and the trampling of the team. When grain is sufficiently covered, further harrowing has a tendency to bring it to the surface and expose it. While thorough dragging, is of the highest importance, the excessive use of the harrow has a tendency, by consolidating the earth, to impair the lightness and friability of the soil. The teeth of the harrow should be long and sharp, so that they may efficiently penetrate and loosen the earth. Where a turf has been turned under, decomposition is promoted by tearing and separating the mass, but it is injudicious to bring it to the

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surface. The familiar triangular drag, which every farmer may construct for himself, is a very suitable implement for new ground, to be used amid stumps and roots. The modern harrow, arranged with hinges, whether square or triangular in form, is a great improvement for ordinary work. It avoids obstacles, by being easily thrown up, and adapts itself to all holes and inequalities in the land. On thoroughly tilled earth, the teeth should be more numerous and smaller, and the wood work lighter, than where the implement is intended to be employed on hard and unsubdued land. In the latter case, the material should be strong, and the teeth large and firm.

The Meadow.—Natural meadows, or tracts formed by a deep alluvial and fertile soil, yield their annual products with little aid from art. These lands are generally subjected to periodical floodings, which act not only physically upon the soil, but leave, as they subside, deposits of the highest fertilizing properties. The same results may be partially accomplished, by directing streams of running water upon meadows. This system of irrigation produces the most beneficial effects. It can usually be created at a trifling expense, and should always be adopted when practicable. Care should be observed, when land is artificially flooded, that the stream be gradual and moderate, and not so violent as to deluge and drench the soil. The greater the amount of vegetable matter held in solution in the water, the more favorable upon most soils, will be the result. Rain water, which precipitates in its descent the fertilizing gases contained in the atmosphere, possesses peculiar efficacy applied in irrigation.

In judicious husbandry, artificial expedients will be adopted to maintain other meadow lands, in a productive state. Among these the most reliable are plaster, a top dressing of compost or rotted manure, and, more scientific and important than any other system, a wise rotation of crops.

When a meadow becomes bound out, as it is termed, or, in other words, when the turf becomes matted and so compact as to be nearly impervious to air and moisture, dragging it with a light and fine-tooth harrow produces highly favorable effects. This operation loosens and opens the earth, and tends to the produc-

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tion of innumerable new shoots of grass. The appropriate grass seed, may be strewn advantageously upon the scarified land. A slight coating of rotted manure, is a valuable auxiliary in this process. I am aware, that the precepts of science denounce the application of manure to the surface, under the theory, that it loses, when thus applied, a large proportion of its fertilizing principle. I have, however, witnessed the greatest temporary benefits result from the practice, and believe it admissible in many circumstances of a farm, especially where there exists an urgent necessity for the immediate increase of the hay crop. This object can be thus attained, more immediately and directly, than to await the more scientific, but slower, results which are attained by a rotation of crops.

The most favorable seasons for top dressing, appear to be either during the rains of autumn, or in the spring, after the grass has slightly started, but sufficiently to protect the manure, from the bright sun and drying winds which then prevail.

Bushes, stones and stumps upon the meadow, not only mar its beauty and detract from its real superficial capacity, but greatly enhance the expense of the various operations of haying. The labor in spring incurred in removing loose stones, and other obstructions, is remunerated four fold, by the time saved in mowing and raking. Stones should be gathered and removed, as much as possible, and if an excess remains, after supplying the materials for walls and drains, it is better to deposit them in a single mound with some symmetry of appearance, than to collect them in small piles to deform the meadow, and to obstruct the full sweep of the scythe. A large amount of labor is annually expended in cutting around stumps, clumps of bushes and stone heaps. The former in mowing should be habitually cut near the ground; if merely topped, they become rough and woody, and each year, require cutting higher than on the preceding. This work, if left to be performed after haying, is apt to be neglected or forgotten in the pressure of other business, until these usurpers gradually establish their dominion over a large proportion of the meadow. The grub hoe is an excellent implement for cutting them up at the surface.

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Bushes may usually be extirpated by two or three cuttings in the months of July and August, which is esteemed the most favorable season for the purpose, although some species, as the willow and shrub oak, can only be destroyed by extracting the roots. This may easily be effected with a team and long chain, carefully girt about the bushes near the ground. An instrument similar in form to a grapple, and known as "the root puller," with sharp prongs, which by a blow of an axe may be firmly attached to the mass of roots, with the aid of an ordinary team, will be found very effective for the eradication of roots. Two men, one to drive and the other to manage the machine, will proceed with great rapidity through a field. This implement may also be very successfully used to pull small stumps, and those even of considerable magnitude.

My own observation and experience does not confirm the opinion often advanced, that fall grazing of meadows is uniformly injudicious. The after feed, is often of the highest value and importance in fattening stock and preparing them for winter. If a heavy burthen of grass remains in autumn upon the surface, the weight of the snow presses it into a thick and matted mass, which often heats and ferments, killing the tender roots of grass beneath. It also prevents the free passage of the superficial water in the spring, and this, freezing, leaves on its subsidence a covering of thin ice spread over the earth, that acts under the sun's rays not unlike a lens, burning and destroying vegetation.

Neat cattle and horses, should never be allowed to range upon and trample a meadow when the earth is soft and porous, and it is still more pernicious for sheep to crop it, peculiarly on a clover ley, in the winter or when the grass is short. They gnaw off the tops of the plants, and thus destroy future vegetation. The moderate depasturing of the after feed I cannot consider injurious.

Stocking.—Red clover, herd grass, or timothy and red top are the grasses familiar to American husbandry. European varieties of equal, if not superior value may be introduced, but these alone can appropriately be referred to in a general view of this subject. White clover may be esteemed a valuable auxiliary, but must be classed, rather with the spontaneous vegetation. Many

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of our natural grasses, will doubtless be found admirable substitutes for the exotic grasses. A grass native to our swamps, and thriving in great luxuriance upon the margin of marshes, familiarly known as the "Blue-joint," is susceptible of the most satisfactory cultivation. In its natural growth, little inferior from its nutritious qualities to herd grass or red top, its massive and rank vegetation, yields an immensely augmented product, over either of the other grasses. Much judgment is required in adapting the appropriate kind of grass to the land to be stocked. Thus, on sandy soils clover should be almost the exclusive seed used; upon loams, herd grass should be the prevalent grass, mingled with clover; and on low and moist lands, red top should predominate, mixed with a small portion of herd grass. On the latter soil, red top soon forms an enduring and tenacious turf, which the heaviest hoof will scarcely penetrate. When the land is suitable to a hoed crop, stocking is most successful where it follows this crop, the next season, after an application of green manure. The process of stocking under these circumstance seldom fails, although generally in our climate it is one of the most uncertain connected with agriculture. Wheat and barley, are esteemed the most favorable spring crops, with which to seed land, and oats perhaps the least so, although oats and peas often afford an excellent medium. Peas are sometimes used with indifferent success. I have known very favorable results in stocking with buckwheat.

Stocking may be effected in connection with fall crops, if sowed sufficiently early, to afford the young grass rooting enough, to preserve it from the action of the frosts. It is, however, very liable to be killed, by an open and variable winter. An excellent system is becoming prevalent, of sowing the grass seed with winter grain, upon the last snows of spring. It can then be sown with great precision, and the melting snows bear it to a suitable depth into the soil; or, if this is not sufficient, a light harrow or roller may be passed over the land with benefit to the crop.

Great care must be exercised before stocking, to effect the entire extirpation of all coarse and noxious plants, either by hoeing or by repeated plowing and cropping, otherwise the crop of hay which follows, will be of an inferior quality, and in a few seasons

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the coarse vegetation will have overwhelmed and supplanted the cultivated grasses.

If the land possesses native fertility, a mode of renovating worn out meadows, where the cultivated grasses have become too thin for profitable mowing, is sometimes adopted with great success. Let the sward be turned over smoothly, and sowed with suitable grain, carefully harrowed and stocked, and the succeeding year will exhibit a fresh and luxuriant growth of grass. I have had a heavy crop of red top succeed this tillage the ensuing season, by a spontaneous growth, without the application of any grass seed.

Recent experience, is leading to the increased culture of this grass; contrary to former opinions, it is found adapted to uplands, and even to light sandy soils, particularly for pasturage.

Experiments in the culture of lucerne, leave little doubt but that it will become more generally introduced. It is invaluable, from its vast productiveness and rapid growth, (yielding several crops in one season) for soiling purposes. My personal experience, although on a limited scale, has been attended with eminent success in the culture of this crop.

Moist and flat lands, when seeded, should be laid down in ridges, their width varying from one to eight rods, dependent upon the degree of moisture. A thorough system of underdraining, however, will be a more perfect corrective of these qualities. A great diversity of theory and practice prevails in reference to the quantity of seed to be used in stocking. It is difficult to harmonize these opinions. The safer medium, perhaps, may be, eight quarts of herdgrass to four pounds of clover to the acre on loams; the same quantity with the proportions reversed on sands; and about a bushel of red top, with four quarts of timothy, upon low grounds. Feeble soils require a greater supply of seed, and manured lands less. An amount of seed proper to secure a heavy stocking is eminently necessary, but an excess, I think, has a tendency to render the growth tender, and by crowding and obstructing it, to prevent a full development of the vegetation. Many intelligent farmers will, doubtless, consider the quantity of seed assumed as sufficient in the preceding instance, much below the proper amount, while a few may consider it too high.

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Hay-making.—The skill and understanding, exhibited by the American farmer in conducting this process, are rarely excelled in any country. Our bright suns, clear atmosphere, and drying winds afford it great facilities. Grass of every kind should be cut at the period as near as possible when the seed is ripe, but while a part of the plants are still in blossom. They all afford at that time the most nutritious hay.* The seed, which is an important element of the crop, is then neither worthless from immaturity, nor wasted in the making of the hay. Let the scythe pass closely to the ground, for nearest the surface lies the heaviest burthen of grass. If hay cannot be secured the same day it is mowed, and especially when the weather is damp and lowering, it is expedient to leave the grass in the swath. This mode may not, however, be advisable when an exuberant yield of grass requires extraordinary labor in curing; but usually the grass dries in this situation upon the exterior, and the remainder wilts and partially cures. After being turned over the second morning and slightly opened, it is ready for storing. This mode effects much saving of labor, and avoids a waste of the ripened seed, and light foliage. Hay is often injured by too much curing. A more gradual and slower process is required in making clover hay, to escape these difficulties. Clover may be essentially cured by sweating in the swath, the winrow and cock, but great care must be observed to prevent its heating and fermentation. When this occurs it is very much injured, and is often pernicious to stock, particularly horses.

Salt may be applied advantageously to hay, when it appears that the grass has not been sufficiently cured, but under ordinary circumstances, I regard its use in this connection as generally unnecessary, and often injurious. If mingled with hay, stock are compelled to consume the salt, frequently in excess, and when they do not desire it.

Salt meadow grass, and the product of the wild grasses of marshes require little curing, and may be stacked soon after cutting. I have known these grasses, preserved in perfect freshness

* These are the conclusions of Professor Norton, embraced in his notes to Stevens, and I yield my own impressions, which have been favorable to a later cutting, to his reasoning. Others prefer a still earlier period. This is among the disputed questions in agriculture, each side of which may be sustained by plausible reasoning.

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when stacked in the midst of a rain storm. The hay stack, should be built with great exactness and symmetry, small at the bottom, spreading out as it approaches the center, and then decreasing until it terminates in nearly an acute top. Let the stack pole be dispensed with, as rain and snow water will generally follow it down, and penetrating the interior of the stack, seriously injure the hay. Riders formed of heavy sticks, fastened together and thrown across and resting upon the summit of the stack, are quite as effective in preserving its position as the pole, and much to be preferred.

The introduction of labor saving implements in haying, immensely facilitates and economises its labor. The common revolving horse rake, will perform the work of eight or ten men; the large hand rake, which should be made about five feet in width, with a short handle, and teeth eight or ten inches long, is of the greatest service for raking after the team, and collecting the scatterings among hay cocks and winrows. Science has afforded to agriculture no gift more important, or one that accomplishes a greater saving of labor and expense, than the reaping and mowing machine. The first outlay for this implement may be beyond the means of the ordinary farmer—but it should be possessed by every neighborhood, as a single machine will be adequate to perform the work of a large community.

The Pasture.—Where the situation of the farm allows of the arrangement, the pasture land should be divided, into four or five separate enclosures. This plan will much increase the amount and value of pasturage. It is judicious to regulate the stock, in reference to this arrangement, so that the neat cattle shall enjoy the first feed, the horses the second, and sheep succeed them. Two of the lots, where there are five enclosures, will thus be constantly growing. Sheep and horses feed much closer than cattle, and eat herbage that the latter reject—consequently, by the above system, the whole vegetation will be consumed. Neat cattle depasturing land exclusively will often, after the lapse of a few seasons, very sensibly deteriorate it. They exhaust the phosphates of the soil, and their excrements, both fluid and solid, are deposited in such large quantities, that they tend to destroy the delicate grasses, and promote the growth of

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weeds and rank vegetation. Sheep, on the contrary, scatter their droppings thinly and universally over the surface, fertilizing the whole; they browse upon most kinds of weeds and bushes, and generally extirpate them, and thus maintain the pasture in a constant state of progress and improvement. I have frequently observed, these opposite effects of the different animals upon pasture land, strikingly exemplified. In my own experience, I have had large tracts of pasturage, embracing twenty or thirty acres, upon which a herd of dairy cows had ranged for several years, until they had become so totally infested by johnswort and other noxious weeds that the range scarcely afforded grass sufficient for the sustenance of one of the animals. I removed the cattle, and substituted sheep, and within two years all the acrid and worthless vegetation had entirely disappeared, and was succeeded by a verdant and beautiful mantle of delicate white clover. A sheep will occasionally be sacrificed in the progress of this renovation. Hogs feed upon the roots of brakes and ferns, and are often efficient agents for their extirpation.

Pure water is always important and indispensable to neat cattle, but is not so essential to sheep and horses. Shade is of the utmost importance, not only such as is afforded by woods, but should be secured by preserving or planting trees along the margins and occasionally within the area of fields. They are not only valuable for this purpose, but they relieve and adorn the scenery. A wood range is not merely a source of great comfort and repose to stock, during the intense heat of summer and in storms, but it also yields a large supply of food, by its leaves and tender shoots and twigs, that animals much crave, and which is undoubtedly healthful to them. Cattle, however, should not be allowed to range upon a wood lot devoted to the growth of young and tender trees, and many highly intelligent farmers doubt the expediency of allowing cows access to wood lots, under the impression that the herbage they crop deteriorates the product of their milk.

The sagacious farmer need not be advised to select the roughest and most stony portions of his farm for pasturage. This is not alone advisable for the obvious advantages of tillage, but it is expedient for another reason. Stones and rocks, thickly strewed over the surface of land, attract the sun's rays in early spring,

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and thus, by the genial warmth they impart to the earth, promote a rapid growth of vegetation, while in the summer they attract moisture from the atmosphere, and, by communicating it to the soil which surrounds them, preserve the grass from the effects of heat and drought. Pastures may be often broken up and tilled to great advantage; but I have never witnessed very favorable results follow from the appropriation of a pasture to mowing, without a fresh and preliminary stocking. Tracts may be appropriated most profitably to sheep, which are not at all adapted to other stock. Sheep thrive upon the coarse herbage they pick upon the rocks, and which springs in the fissures of broken and mountain ranges, where other animals cannot penetrate.

Sand barrens, and the rank vegetation which grows upon them spontaneously without culture, are peculiarly congenial to the health and thrift of sheep. In a few seasons they will subdue the coarse growth upon these lands, and bring them into excellent pasturage.

Plaster, ashes, lime, and even compost, may be advantageously applied to pasture lands. I cannot, either from philosophy or experience, concur in the views of those who assert that pastures should be in the full burthen of grass before stock is turned out in the spring. I believe it to be more natural and safer, to gradually habituate the animal to the change from dry to green food. Nature, by the slow progress of vegetation in the spring, appears to anticipate and adapt itself to this gradual change. Animals, and particularly horses, are annually injured, and often lost, by being turned at once from hay and grain into luxuriant pasturage. The hoven, colic and other diseases, are induced by it. I am aware that many scientific farmers will refuse to ratify this opinion.

Weeds.—I have already discussed various points which may naturally be embraced under this head. Vigilance and industry in resisting the encroachments of these pests to husbandry, at the onset, will save a vast amount of future toil and inconvenience as well as direct injury to the farm. When kale, the ox-eyed daisy, and other plants of an analogous nature first appear in our crops

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they may be extirpated with comparatively little labor, by pulling them by hand; but if allowed to ripen, their seeds are widely disseminated in the manure, and the toil is yearly and most rapidly increased.

Tillage, with hoed crops, will usually destroy weeds, but it may be necessary to pursue the system for more than one season. Repeated plowing and cropping with buckwheat, peas, or other crops which have a subduing and cleansing effect upon the land, will generally extirpate them. When meadows are overrun by weeds, it is advisable to cut the grass for a season or two before they have matured their seeds. This will prevent their diffusion—and a thorough dressing of rotted manure, by invigorating the growth of grass, will enable it to overcome and suppress the weeds. When meadows are much infested by these plants, the dung produced from the hay cut upon them should be subjected to fermentation, which destroys the germinating principle of the seed, before it is applied to the land. Great care should be taken to cut and keep down weeds which spring in the angles of fences and along the highways. Let them be cut green and deposited in the manure manufactory in the barn yard, in the hog pen, and upon the compost heap. Canada thistles, and most similar weeds, may be destroyed by thorough and repeated mowing during the summer solstice. This effect is produced by depriving the plant of the agency by which it derives nourishment from the atmosphere, and by water penetrating the orifice of the stem, and thus rotting and destroying the root. But many of this class of plants seem to be almost indestructible, and resist all ordinary means. Salt applied heavily, or fires of brush or straw kindled on them, are often the only effectual means for their extirmination.

Drains.—No expenditure in the improvement of a farm, yields a more direct and immediate return than that incurred in the judicious construction of drains. I have known large fields, of twenty or thirty acres, totally changed in their qualities and immensely improved by the construction of a single drain.

When swamps or low grounds are intended to be drained, it is expedient to place the ditch where the ground is the most de-

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pressed. This will carry off the surface water, which collects in these positions. If, however, springs ooze from the highest parts of the field, which is often the case, particularly on the slopes of mountains and hills, the drain should be so situated as to cut them off as near their fountains as possible. It is frequently proper, in addition to a main ditch through low lands, to run a drain around the exterior to receive the spring water, and lateral ones, to be discharged into the main trunk. Open ditches where land is cheap, and the drains not required to be numerous, are the cheapest and usually the most convenient. Covered drains, however, preserve an unbroken surface, and do not mar the beauty of the land.

Tiles are very much in use and will become more common as competition in their manufacture reduces their cost. They will ultimately, I think, be adopted as the most convenient and in the end, economical material for the construction of drains. A very effective drain may be formed of stones. When the descent is considerable this may be constructed by throwing loose stone into a ditch three feet deep by two feet wide. The water will find a free passage. If the descent is not sufficient for this mode, place on each side of the ditch, along the bottom, a row of stones, laid closely from four to six inches high, lay across these rows flat stones, slabs or boards, covering these with pine or cedar boughs, or other materials, which will prevent the earth from passing through, and then fill the opening with the excavated earth. Let the line of the drain be a little elevated above the adjacent land. This structure will form a durable and effective drain. The beneficial effects of drainage upon many soils can scarcely be calculated. The entire character of the land will often become modified and ameliorated. When even slight moisture is perceptible in the earth through the season, we may be assured that drainage will be wisely applied. The assertion is apparently paradoxical, but the fact seems to be well established by experience, that lands thoroughly drained are the least affected by excessive drouths. My limits will not permit a discussion of the causes which produce this result. Few farms exist that do not comprehend tracts which are utterly worthless in their natural state, but which possess the highest elements of native fertility. These

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may almost universally be reclaimed, and rendered eminently productive by a wise system of drainage. This condition of the earth is far more prevalent than a superficial observer will credit. Although the evidences of its presence may not appear at midsummer, the effect of this concealed moisture has retarded the progress of vegetation, and is exhibited in a stunted growth and a sickly and yellow aspect of crops, upon apparently rich land. Where these appearances exist, you may be confident that draining only will produce ample harvest. Manures alone will not accomplish the result.

The earth, excavated in ditching, should, on low grounds, be spread over the surface in order to elevate it; but under other circumstances, and especially when it contains a mass of organic matter, it should be thrown into heaps and left to rot and decompose, and then applied to other land, or be carried to the barn yard or compost heap, and there converted into manure. The whole expense of extensive ditching, may be remunerated by the value of the earth excavated for these purposes. The depth of the trench, although three feet, as stated before, may generally be sufficient, must be determined by the peculiarities of every location. This prominent and important rule, however, must govern, let the ditch be constructed deep enough to cut off all the springs and standing hidden water below as well as that on the surface. The width of the trench, should depend much upon the depth. Two feet will usually be found sufficient at the surface; the sides inclining inward, with a slope of thirty or forty degrees. The angle of the slope must be determined by the loose or adhesive nature of the earth.

The quantity of water discharged by a drain of ordinary moisture exceeds our belief, and unanswerably demonstrates the value and importance of these improvements. Pastures deficient in water may often, by the exercise of a little skill, be abundantly supplied, by discharging drains into them.

Manures.

The animal, the mineral and vegetable kingdom each embraces elements which may be appropriated for fertilizing the earth, and sustaining and renovating the soil that tillage exhausts of its producing powers. To create, increase and judiciously apply these form the great, first principle of wise hus-

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bandry. The barn yard and pig stye are the most important resources upon a farm for the manufacture of manure, but the product of both these may be immensely increased by care and appropriate management. The great means by which this result may be successfully attained, is the increase of the mass, by the combination with the excrements of animals, of other ingredients which may be converted into manure, and by the use of absorbents to prevent the escape and to concentrate the fertilizing gases which are evolved in the fermentation and decay of all animal and vegetable substances. These exhalations, which are so offensive to the human senses and so destructive to animal life, are the most important and nutritious aliments to plants. Let the hog pen and the repositories I have already described in the barn yard, be made the receptacle of every material capable of decomposition and convertible into manure. Leaves, common weeds cut when green, the coarse growth of marshes, sea-weed, muck from swamps, scrapings of ditches, turf, vegetable mold, straw, refuse from the mangers, hair and woolen fabrics, may be enumerated as the most available of these materials, and suggestive of their nature and extent. When decayed, they constitute themseves valuable manures, and in these places, act also as absorbent and fixing agents of the liquid excrements and volatile gases. Stable dung should if possible be covered, or kept constantly combined with or protected by some of the above materials. This preserves the dung from being drenched by rains and snow, or its fertilizing elements exhaled in the atmosphere.

The urine of animals is not held in the high estimation among American farmers that its importance demands. In Europe, and especially on their large dairy farms, and occasionally among the more progressive farmers in this country, great care is taken to collect and secure this material. It is esteemed of equal value with the solid excrements, and it is estimated that it is voided by animals in about the same proportion. In collecting urine, it is conducted from the stable by channels into tanks or cisterns, and from thence is pumped out and diluted with water, and is applied by means of carts carrying casks which contain the liquid, to the growing crops or grass land. The effect upon the latter, particularly, is described as very remarkable.

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The urine when pumped from the cistern, is by some farmers poured upon the compost heap, while others place absorbent materials, such as straw, mould or peat in the cistern, which imbibe the liquid, and by this medium it is applied to the soil. Where a large number of animals occupy a stable, a system of this kind is probably wise and remunerative, but on small farms, in our severe climate, other and more economical expedients may, I think, be adopted to secure in a great degree this valuable ingredient. A thorough litter of straw or sawdust strewn in the stable, will absorb a large proportion of the fluid. It rapidly becomes solidified in the form of ice, and is thus removed and preserved, and in that shape mingled with the manure pile or compost heap. As this gradually thaws, the urine becomes effectually taken up and combined with the absorbents they contain.

The repository I have repeatedly referred to, forms a receptacle for all the fluids of the barn yard, and if it is properly constructed, little need be lost by drenching.

Manure, especially horse-dung, is frequently, even in the winter season, seriously injured by an excess of fermentation. This is called "fire fanging." This process is indicated by great heat in the pile, and by the eruption of smoke and vapor, and may readily be arrested by opening and stirring the mass; others produce the same result by firmly treading down. I have, however, found the first mode the most successful.* The term compost, in its general acceptance, is applied to the formation of a mass of substances susceptible of decomposition, and capable of being combined and used as a manure. The reservoir in the barn yard should be esteemed the site of the great compost of the farm, and here should be gathered every ingredient adapted to the purpose, where the aggregate may rot, mingle with the excrementary liquids of the yard, be trampled upon and mixed by the stock, until in the spring it is transmuted into a fountain of wealth to the farmer. Nor is it only during the winter that this manufac-

* This opinion I advance as the result of my own experience, but it is proper I should state, that an enlightened agriculturist of our own State, dissents from these views, and that Mr. Morton, the able author of the Cyclopedia of Agriculture, page 345, vol. 2d, advises that "manures in the dung pit should be kept firm, and for this end, pigs might be kept upon it, and cattle might occasionally be allowed to consolidate it by treading." Practices, however, which may be favorably pursued in the humid climate of England, are not uniformly adapted to this country.

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tory of manure should be kept in operation. Weeds cut green, the refuse of the garden, the droppings of cattle yarded during the night in summer, small dead animals, and a regular and frequent coating of peat, turf or vegetable mold, and the mass being strewn frequently with mold, plaster, charcoal or lime, to fix and preserve the fertilizing gases, that will be evolved by the fermentation which will commence in a few days, and be in constant action in the heap.

I may here remark, that plaster and charcoal dust, have a strong chemical affinity to the gases and exhalations which create the unpleasant effluvia about stables, hog pens and privies. This offensive effluvium is produced by elements which are the choicest food of plants. By strewing the manure and compost heaps with the chemical agents enumerated, the atmosphere will be purified, and all these principles of vegetable nutrition be preserved and rendered subservient to the purposes of agriculture. The amount of fertilizing matter lost by the dissemination of these gases in the atmosphere is immense, and may in a great degree be avoided by this simple measure.

The farmer who has never practiced this system, will be surprised at autumn, to contemplate the quantity of excellent manure he has created in this deposit, by pursuing the course recommended. A dead animal, instead of being left to decompose upon the surface, an object of disgust and offence, may be made the basis of a large body of valuable manure. Spread over the body a heavy coating of lime, plaster, charcoal dust or ashes, and cover the whole with several times the bulk of mould, turf or peat, and occasionally, if effluvia escape, strew upon it an additional quantity of the fixing agents and increase the covering of earth. In a few months complete decomposition will have taken place, and the whole mass may be removed for application to the land in the form of a highly rich compost.

Compost.—The scientific compost is formed by a combination of regular proportions of animal dung with peat, turf or vegetable mould. The proportion of the latter is usually from a third to a half of the former, mingled with a little quicklime to promote fermentation. When this process has partially occurred, the heap is mixed or cut down, and is then ready for use. This pro-

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ceeding involves the necessity of several transportations of heavy materials, and although it affords an excellent manure, is laborious and expensive.

In almost every section of the State, few farms occur which do not contain ample deposits of peat or swamp muck. These deposits afford invaluable and exhaustless resources for fertilizing the soil. When dug it should be thrown into heaps, to allow the water it holds to pass off. A great and useless weight may thus be avoided in transportation. Peat is composed almost exclusively of decayed vegetable matter, and the roots, fibers, and other components of plants. In its native condition it is marked by the presence of sour, acrid, and insoluble properties, which render it, while in that state, valueless as an application for fertilizing purposes to soil. It must be freed before being used from these qualities, which impregnate, and are intimately blended with it. This may be accomplished by throwing it into piles, and leaving it for several months, including the period of winter, to the effects of the elements and frost. A slight fermentation is thus produced, the acidity is neutralized, and the mass becomes disintegrated, and friable, and may then, with great profit, be applied to the soil. It is particularly valuable in combination with light and warm earths. The process of decomposition, it is generally supposed, is quickened by the slight incorporation of quick lime with the peat. Peat is one of the most important constituents of the compost heap.

The peat may be drawn into the barn yard or hog pen in the autumn, and spread over the surface, beneath the sheds, or in the reservoir. It is a most powerful absorbent, and will take up an immense amount of liquid manures, while the rooting of swine and the tramping of cattle thoroughly mingle and combine it with the dung. Frost and the subsequent fermentation of the mass, when cast into heaps, perfectly disintegrates and prepares it for use. The peat is probably made the most available and useful by the latter mode, and by this system the manures of a farm may be increased to almost any extent.

Green crops.—Plowing in green crops, is another means of fertilizing land, economical in the expense, and of the greatest efficacy. Clover and buckwheat are the crops usually appropriated to this tillage, although various other crops, as rye and lucerne,

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may be advantageously used. The growing crop should be plowed under when in full flower. It yields at that period far more enriching elements to the soil, as the plants then have a greater luxuriance of foliage, and contain more soluble matter, which is the ingredient that affords nutrition to the succeeding crop of grain. It is estimated, from competent, chemical analysis, that the green vegetation, by this tillage, incorporated with the earth, gives to the soil three times the fertilizing matter it would have produced through its consumption by animals. When clover has been turned in, the land should ordinarily be occupied by the grain crop without a second plowing, as the woody fiber of the clover is slowly decomposed; but buckwheat, being more succulent and tender, will decompose very rapidly, and the land may be plowed again preparatory to the crop; or if it is deemed expedient, buckwheat may be sowed on the furrow after the first crop has been turned under, and again plowed in, when the land is plowed preparatory to the grain sowing.

The second crop of clover in the season is usually inverted in this system. A bushel or six pecks of buckwheat should be sowed for this purpose to the acre. It is stated that when green crops are thus buried, the fermentation produced while they are decomposing is so strong, the vapor exhaled may be seen arising from the furrow similar to the exhalations evolved from a fermenting dung heap. The fact illustrates the theory that this process powerfully impregnates the soil with azote, ammonia and other principles of the highest fertility. Green crops are more effectually covered, if a light roller is passed over them, before the land is plowed.

Application of manures.—Much judgment and skill are required in determining the appropriateness of the different kinds of manures to the various soil, and their adaptation to particular crops. Manures are very unlike in some of their qualities, and that fact is not always properly regarded in their application. Neat cattle produce dung, cool and moist in its nature, and not disposed to quick and powerful fermentation. The excrements of the horse and sheep, particularly that of the former, are hot and dry, and subject to rapid and vigorous fermentation. The dung of pigeons and poultry possesses great natural richness, but is highly acrid and

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corrosive, and can be applied safely and profitably only in combination with earth or water. Hence the conclusion is obvious, that manures, of which hog and cattle dung are the chief components, should be appropriated to light and warm soils, and those composed of horse and sheep dung should be used on cold and moist land. When the latter have been applied to warm and sandy soils, particularly if fermentation has not taken place, very injurious effects often ensue. The heat and dryness imparted by these manures, combined with the native properties of the land, have proved not unfrequently fatal to the crops. Composts may, in general, be applied safely and profitably to all lands. No department of the farm affords manure of a nature so efficient, and in such quantities, in proportion to the food consumed, as the hog pen, and no where can skill and industry be so advantageously exerted to effect its production and increase. The dung of poultry is of great value, and should carefully be preserved. Horse dung operates the most rapidly upon the soil; that of sheep acts more gradual than cows, but is more permanent and lasting in its effect than either horse or cow dung.

The chip yard affords annually a large product of manure, useful for many purposes. It is well adapted, when thoroughly rotted, to warm soils; if not decomposed, it is too drying in its effect, and therefore injurious when applied to these soils; is a very superior appliance to the roots of fruit trees, and an excellent top dressing for grass lands, except on a wet soil, where it has a tendency to produce moss. Chip manure is a powerful absorbent, and therefore, useful in forming a compost, and for spreading in a barn yard or hog pen, to imbibe the liquid manures. This substance should only be used after it is perfectly decomposed.

Much difference of opinion prevails in reference to the condition in which dung should be applied to the soil, whether in a green state, partially fermented or wholly rotted. This question, like numerous other points in agriculture, cannot be governed by any fixed and arbitrary law. I have, in the preceding pages, occasionally adverted to this subject, and shall notice it more fully, in its incidental connection with the culture of the various crops. It is proper, however, to refer here to one or two prominent and well established rules, in relation to the management of barn yard manure.

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Long or strawy manures should uniformly be plowed under. The droppings of cattle should not be permitted to remain scattered about the yard, to dry up and evaporate, but should be thrown upon the compost pile or into heaps. If it is not intended to apply the manure green, while the process of f rmentation is going on it should be studiously protected by the application of absorbent ingredients and a covering of mould or peat, to prevent the escape of the gases, which we have seen are exhaled.

Straw.—Dry straw in itself is the least valuable as a manure of almost any vegetable product, it appearing, by actual analysis, to contain only about two per cent of fertilizing matter, except the fiber of the plant, which is very slow in decomposition. As an absorbent of liquid manures, straw possesses great value. Deposited in the furrow, and covered by the second furrow slice, it also exerts a profitable physical agency upon some heavy soils, by opening and rendering them lighter.

Plaster or gypsum.—I do not propose to discuss the probable causes or philosophy of the potent, although subtle and mysterious influence of gypsum upon the soil. I shall merely present some general views of its effects, and the circumstances under which it may be applied, and reserve a notice of its use in specific instances, as the subject arises.

It may be regarded, probably, as an aid to other manures rather than a substitute for them. We know, that the presence of air is as essential to vegetable life, as it is to animal existence, and science is constantly developing facts which demonstrate, that the atmosphere is impregnated by principles the most important to the nutrition and growth of vegetation. These are the elements that are embraced, in all animal and vegetable manures, and are evolved in their decomposition. Gypsum has a chemical affinity for them. Does it not, then, fix or concentrate them by this affinity, and impart them by other combinations to the soil.

Gypsum is the sulphate of lime, and one of its most efficient and valuable functions seems to be, its acting as a chemical agent to fix the ammonia, whether it exists in the atmosphere, rain, snow, or stable dung. In leaving the basis of lime, the sulphuric

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acid unites with the ammonia, and forms a compound which is not volatile or easily dissipated by the action of the winds or sun, but readily yields its nitrogen to the nourishment of the growing plants.

Experience seems to have established, in reference to the use of plaster, the following conclusions: It has little or no effect in a marine atmosphere, or upon low and moist lands; it is peculiarly adapted to light and warm soils; when used upon tilled ground, it should be plowed in, or mingled with the earth by the harrow or hoe; it may however be strewed upon corn, potatoes or beans, immediately after hoeing; its effects are much more decided on tilled land, when a turf or a dressing of green manure has been plowed in; where a clover crop is turned under, the fertilizing influence of that crop is much enhanced by an application of plaster, immediately preceding the plowing.

Plaster, when used as a top dressing, has the most efficacy if applied to plants bearing a thick foliage, and broad, succulent leaves, such as clover, buckwheat, lucerne, and peas. It should be applied to these crops in an early stage of their growth. All crops of grain appear to be benefited to a greater or less extent by the application of plaster. To meadows or sowed grain it may be applied either in the autumn or when the plant first begins to shoot in early spring. The opinion is, I think, becoming prevalent, that a dressing of meadow land is the most effective in the fall. A small amount, it is fully ascertained, effects equal if not greater benefits than a copious application. About a bushel to the acre is considered sufficient, either upon grass or grain, and this should not be repeated in two consecutive seasons, but an interval of one or two years should occur between the applications.

Gypsum is a constituent of many plants, and where, as sometimes happens in particular localities, it is found that it has little or no effect, analysis will probably show its prevalence in the plants themselves of that region in sufficient abundance. Its effect is more distinct and visible in wet than in dry seasons, and generally, I believe, the most marked in the second season after its application. Plaster is very advantageously used upon pasture

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lands. Wheat, oats and barley, wetted and rolled in plaster, are sown with greater accuracy, and the crop will be decidedly benefited by the application.

Lime.—The active and invigorating effect of lime, when applied to many soils, is almost incredible. It is believed to be useful upon every variety of land. Lime enters into the composition of nearly all earths, and although an excess seldom occurs, a deficiency needs often to be supplied, Lime requires to be incorporated with the soil, and this should be done superficially, as it possesses a tendency to sink deep into the earth.* It is in the highest degree efficacious upon sour and cold lands. It combines chemically with the earth in these situations, neutralises its acidity, loosens its adhesiveness, and promotes the decomposition and disintegrating of the turf and other adhesive and tenacious vegetation, and thus prepares the soil for the occupancy and nutrition of productive plants. Upon sandy earths, lime is found of great value, by supplying a necessary element of soil in which they are deficient. Lime promotes eminently the successful culture of wheat, and is a valuable appliance in the tillage of the corn and potato crop, alike by advancing their growth and preserving them from insects and worms.

It may be applied to grass land in a caustic state, or be spread upon the surface of newly plowed ground. The last operation should be performed immediately after the lime has been slacked. Lime is often used to advantage in combination with plaster and ashes. It is an important constituent of a compost heap, where vigorous and immediate fermentation is desired.

A very effectual and simple mode of preparing lime for use is the following: Place a small quantity of mold or peat upon the ground, then add eight or ten bushels of unslacked lime, spread over this a heavy layer of the mold or peat, and again repeat the application of the same quantity of lime, and continue the combination in the same proportion to any extent. Allow the mound to remain a few days undisturbed, and then mix the mass with a shovel. It will thus become perfectly amalgamated, and will form a most valuable application, especially to light soils and

* Fessenden Com. Far., p. 194, En. of Ag.

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hoed crops. After a sufficient dressing of lime has been applied to land, several years should intervene, before it is repeated. Much uncertainty exists as to the proper quantity of lime to be used in this system. Sands and light soils generally require a smaller quantity than moist, heavy and adhesive earths. A range of between twenty and seventy bushels to the acre may be assumed as the suitable dressing for the former, while an application of almost any quantity, extending to several hundreds of bushels, may advantageously be made to the latter. The amount applied in England sometimes reaches to the enormous quantity of six hundred bushels.* The refuse lime strewed about the kilns, of little value for other purposes, may be used for this object. In a limestone region, or where oyster shells abound, lime may be prepared for agricultural uses by burning the crude material with a log heap.

Lime may be applied upon fall plowed land with great benefit. Let it be mingled with the soil by a light drag. The causticity of the lime will be mitigated by an exposure to the storms and damps of winter, and all danger from the effects of this property in the ingredient be avoided. It is asserted that the action of lime tends to open and make friable clay earth, and that it increases the retentive powers of loose soils.

Lime has been ascertained to be a powerful preservative of the onion from the ravages of the maggot, which have proved so destructive to that crop. When used for this purpose it should be thoroughly mixed and incorporated with the earth, before the seed is planted.

Salt.—Much discussion has taken place, both in Europe and America, on the subject of salt as a manure. About a fourth of a century ago the duty on salt was modified by the British Parliament in order to promote its introduction for agricultural purposes.

The distinguished Richard Peters, of Pennsylvania, published about the same period an able pamphlet, in which he attempted to demonstrate, that salt was one of the most valuable of the special manures, and certainly advanced many strong circumstances in corroboration of his views. Salt is known to be destructive to vegetable life, and should, therefore, be used moderately and

* The practice at present in England seems to be in favor of smaller applications at shorter intervals.

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in a manner not to interfere with the plant. It is among the most powerful of chemical agents; has great affinity to moisture, and is therefore enumerated among the most deliquescent substances; it attracts heat, and has a very caustic effect upon the animal creation. All these qualities render it available as a manure.*

Salt should be applied at the rate of five or six bushels on plowed ground, and should be completely mixed with the soil before grain is sown. Its effect seems to be varied and powerful on land. By its causticity, which, although comparatively mild, is sufficient for this purpose, it destroys the eggs and larvæ of worms and insects that infest the soil † It attracts the woody fiber and vegetable matter in the earth, and, combining with these substances, forms a carbonate, which is an active and vigorous fertilizer. It also attracts the fertilizing gases held in the atmosphere. By its affinity to heat it accumulates and invigorates early vegetation, and by its deliquescent nature, which attracts the moisture of the atmosphere, and imparts it to the earth, salt tends to preserve land from the effects of drouth. During the driest and warmest period of summer, a minute circle of moisture may be perceived early in the morning, around every particle of salt upon the surface.

Sown at the rate of three bushels to the acre on meadows immediately after mowing, salt, it is stated by able writers, will produce a rank and luxuriant after-math, and will vastly improve the crops of the ensuing year. Applied in about double this quantity to pastures, the same authorities assert that salt will greatly increase the yield of pasturage. By application to warm and sandy soils it is said to exert a powerful effect in the destruction of worms, grubs and other insects, converting them into a rich animal manure. The following system of tillage is recommended as successful in its immediate results, and as productive of constantly increasing fertility:—After a crop of wheat has been harvested on a deep and dry loam, plow the land and let it remain until spring after being well pulverized by the harrow, then plant it with potatoes, and as soon as the seed is covered, sow sixteen bushels of salt to the acre, strewn upon the surface. Plow and sow again to wheat,

* Memoirs of the Board of Ag., N. Y., p. 93, Vol. 1st.
† do do do p. 93 and 94, Vol. 1st.

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and follow it by the potato crop and salt. It is confidently alleged, from the result of experience, that this system may be pursued for a series of years with constantly improving crops, and augmenting fertility of the soil. Facts, it is believed, confirm the theory, that when wheat is sowed on land upon which a copious application of salt has been made, the crop is uniformly exempt from rust or mildew. In support of these opinions, in reference to the virtue of salt as a fertilizer, it should be stated that every variety of sea weed is known to possess great efficacy as a manure, especially when applied to sandy earths. Marine sands are transported a considerable distance to be used for manuring these lands, and Judge Peters pertinently remarks in a manuscript letter before me, that the fertility they produce cannot be ascribed to any virtue in the sands themselves, but must be imputed to the salt they contain. Salt or brine is of the utmost utility when applied to an asparagus bed (this plant being of marine origin), or when strewn over the surface of a garden as a protection against worms and insects. It is stated by intelligent authors that vegetable soils, mantled by mosses, or other innutritious plants, when properly drained and sown with ten or twelve bushels of salt to the acre, will the succeeding year, yield an abundant crop of nourishing grasses.

Bones.—Bone dust has become a prominent article among the special manures in the estimation of British farmers, and is annually acquiring greater importance in our own husbandry. Large quantities of bones are yearly brought to England from the continent, and it is affirmed that the bleaching relics of the battle field of Waterloo have been imported to administer to the fertility of British earth. Having no personal experience or practical knowledge on the subject, I avail myself of the views contained in an instructive and valuable article in the Country Gentleman of February 1, 1855. This writer states, that the value of bones depends upon the phosphate of lime and gelatine they contain. If they are burnt, the gelatine is driven off, and the phosphate remains in the ashes. Dry bones in 100 lbs. contain about 50 lbs. of phosphate and gelatine equal to about 5 lbs. of ammonia. Half of their value is lost in burning, and this process therefore, should be avoided.

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How shall both of these substances be retained? To plow the bones in, is the first plan suggested. This will certainly retain in the soil all the virtue possessed by the bones; but they decompose so slowly, and give out their fertilizing influences so gradually, that little or no immediate benefit is derived from their application. Another plan proposed is to place the bones in moist leached ashes, horse dung or other fermenting materials, where they will decompose and become pulverized. The objection to this plan is the escape of ammonia. This may be partially prevented by a coating of loam, which however, in a considerable degree, retards the process of fermentation.

The most effectual way of obtaining all the benefits to be derived, is by grinding them. This, it is believed, may be performed by an ordinary plaster mill, but it is very desirable that cheap bone mills should be erected in every town. A vast amount of the most valuable manure might, by this means, be secured to the uses of agriculture. The bone dust may be applied either directly by sowing it on the land, or after being converted into super-phosphate of lime. The latter process is attended with considerable expense, and is generally of doubtful economy. As an application to grass and wheat, the crude bone dust is deemed the best material. On turnips and other hoed crops, except potatoes, no material has such beneficial effects as good home-made super-phosphate of lime drilled in with the seed. The super-phosphate may be made as follows:—Into a large tub place the quantity of bone dust that may be best worked in it at a time, say 60 lbs., add sufficient water to wet all the bone dust, being careful to moisten the whole. Then pour on sulphuric acid, equal to one-third the weight of the bone dust. The mass should be briskly stirred as soon as the acid is added, and when it is well mixed throw the semi-fluid mass in a heap, on a wooden floor. Continue the process until your materials are consumed. The larger the heap the more favorable, as the heat generated during the process materially assists the acid in decomposing the bones. This operation cannot be performed with due economy, if the acid costs more than two cents per lb.

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A tolerably good superphosphate may be made with less labor by placing all the bone dust at once in a heap on a wooden floor, adding a proper quantity of water until the whole is moistened. Then apply the acid in small quantities, repeatedly shovelling over the mass, until a sufficient quantity of the acid is used. The longer the super-phosphate is allowed to remain in the heap the better.

Superphosphate made in this manner will be too moist for transportation, and cannot be sown to advantage without an admixture with some absorbent material. In England burnt clay, refuse charcoal dust, dry peat and saw dust, are used for this purpose. Care should be observed that neither an alkali or an alkaline earth be applied, as it would materially injure the preparation. Hence, unleached wood ashes and lime must not be used in the admixture, they would neutralize the acid, and reconvert the soluble superphosphate into insoluble phosphate, and thus undo what has been performed with so much labor.

Bones crushed by hand, may with some benefit, be plowed under for crops, and with great advantage, be applied to the roots of fruit trees.

Charcoal dust.—In no instance is the improvidence of the American farmer in his neglect of fertilizing ingredients more strikingly illustrated, than in his waste of this most valuable material. The dust or detritus of charcoal collects in large deposits about manufactories where the charcoal is consumed and soon becomes an inconvenience. Instead of being converted to the fertilizing of the soil, in most districts, it is thrown into the streams as a nuisance, or used for the construction of roads. Its great value as a manure is, however, becoming better appreciated.

Charcoal is almost indestructible, and remains a permanent and active agent in the soil to which it has been applied. It has strong affinity for the gases of the atmosphere, and is a vigorous absorbent, and from its nature in these respects, it imbibes vast fertilizing elements, which it imparts to the earth. It combines with the earth chemically, and forms a physical union that produces a new and highly-improved texture to the soil. Few special manures are so active, direct and enduring in their effects.

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The following results of practical experiments in the use of charcoal, dust prove its peculiar value, and exhibit the manner of applying it. These experiments are limited to the county of Essex, and came under my own observation in course of my survey of that county in the year 1852.

In the first case I noticed, it had been strewn upon five acres of meadow in so large quantities as to blacken the surface. The field presented a rich verdant aspect, although all vegetation was seared and parched in the vicinity by a severe drouth. On its first application (which was two years previous to this period), the effect was immediate. The grass at once freshened, and continued green and luxuriant long after the surrounding fields were withered by the early frost. The owner estimated that the crop of hay had been doubled by the application of the charcoal.

Mr. Whallon, of Essex, thus explains his views and experiments on this subject: "I spread upon a strong clay soil about fifteen wagon loads of the dust to the acre, after the wheat had been sowed and harrowed one way. I was surprised to find my crop a heavy one in comparison with my neighbor's, sowed on the same kind of land. The wheat was of better quality, and yielded four or five bushels extra to the acre. I have since used it on similar land, mixt with barn yard manure, and sometimes alone, but always as a top dressing, and usually on lands seeded for meadow. The results were always the most favorable. I find my lands thus seeded produce more than an average crop, and of the finest quality. I have also used the dust on loamy and interval land with the potato crop. During the series of years, in which the rot almost ruined that crop, I scarcely lost any potatoes from that cause, and supposed it was owing to the dust I used. My manner has been, to drop the seed and cover it with a small shovelful of dust, and then cover it with earth." I noticed instances in which the charcoal dust had been used on oats with the same beneficial influences. Whether applied to meadows or pastures, the same remarkable effects are produced upon grass.

This dust may be very advantageously used, strewn over garden beds, as a protection to the young shoots of vegetables from

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the attacks of insects. The ashes of mineral coal may also be beneficially applied as a fertilizer to many crops.

Wood ashes.—This is a valuable manure, and may be used in a crude state, or after being leached. In the former condition they are highly caustic and active, and must be applied with caution. Ashes are useful as a top dressing to grass lands, or in connection with cereal crops. The crude ashes are an excellent auxiliary in the tillage of peaty soils, "where they combine with the vegetable fiber, and convert the carbonaceous matter into soluble nutriment." The same author remarks, "I have seen a field of wheat almost entirely yellow and laboring under the utmost degree of morbid langor, from a simple top dressing of ashes of ten bushels to the acre, become green again, revive, throw out from five to ten additional slotes to a root, and stand out one of the proudest crops I ever beheld."*

Ashes are a highly useful appliance to sandy lands, exerting a positive fertilizing effect, forming chemical combinations, and creating a new texture, by a physical union with the soil. Ashes form an excellent admixture with lime and plaster, or the latter alone, for the top dressing of corn, potatoes or beans. Care should be taken, not to place it in contact with the plants. It may be mixed with the earth at hoeing. Moisture, uniting with the ashes, produces a lye which is destructive to vegetation. I have known whole crops of corn and beans, materially injured by the occurrence of a shower, immediately after unleached ashes had been applied to them.

Sand and clay.—The application of each of these primitive earths to the other, is one of the readiest and most important operations in husbandry for improving the fertility of the soil, without the application of bard yard manures. It is simple and easy of accomplishment, and few localities exist, where one of these substances predominates, without the proximity in accessible deposits, of the other.

Clay and sand, each possesses its peculiar properties and advantages in husbandry, but when united and mingled, the combination constitutes the most excellent of all soils. Art may accom-

* Memoirs N. Y. Board of Agri., vol. 1, page 94.

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plish this result in a great degree. Even the slight application on an acre, of twenty loads of sand to clay, or the reverse, although a larger amount would be far more valuable, will communcate a new character to the earth, and impart an increased fertility that will be enduring. Sand, when applied to clay corrects its coldness, opens and loosens it, and renders it more friable, and permeable to heat, air and moisture, and converts it into a state more practicable for tillage. Clay communicates a greater adhesiveness to sand, gives it firmness and solidity of texture, renders it more retentive of moisture, and less affected by winds and drouth. Clay must be applied in a pulverized condition; and to attain that object, it should be thrown into heaps, and left for several months exposed to the action of the frost and elements. Clay may be either plowed under, or spread upon the surface, and mingled with the sand by the harrow. The argil, which is a predominating component of clay, possesses in itself considerable native fertility.

I have, in my own possession, a field, which exhibits a striking illustration of the efficiency of this method of fertilizing sands. About thirty years ago, my father, in course of the varied experiments he was then pursuing, applied forty loads of clay to about an acre of sandy plain. The effect still endures, decided and apparent. The superior excellence of the crops, whether of grass or grain, upon the acre, where this application was made, attests the value of the system. This land yields twice the amount of pasturage and grain, of that immediately adjacent to it, of similar natural qualities.

My own experience confirms the conclusion, that a load of pulverized clay, applied to sands, is nearly equal in value to the same quantity of barn yard manure in its immediate effects, and that it is far more enduring and efficient in its permanent influence upon the soil.*

* I do not propose to discuss the subject of guano, poudrette or phosphate of lime. These ingredients are not at present within the reach of most farmers, although I entertain no doubt of the value or utility of either, when applied with judgment and a proper understanding of the mode in which they are to be used. This seems to be yet undetermined, and hence their use, particularly the guano, proves often not merely a failure, but positively injurious. On this question, I have the benefit of no light derived from my own experience.

I have endeavored to indicate measures, by which the farmer may direct his energies to the creation of manures equal to his wants, from his own domestic resources.

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Rotation.—The bare fallow, as it is called in England, is falling into general disuse, even in that country, and has little, I think, to recommend it to our adoption, except under extraordinary circumstances. The objections to this system, which I would suggest, are these:—A season must be lost in the use of the land; by the practice, much labor is incurred, without any immediate return; the turf and vegetable mold are disturbed by repeated plowings; and, more particularly, the naked earth is exposed through a hot and dry summer of our climate, to the burning and exhaling influence of the sun.

When a cold and sour clayey earth, or a crude subsoil beneath sands, but especially the former, has been turned up, the exposure, by a bare fallow, to the action of the elements, may be useful. If the soil is infested by rank weeds, so tenacious of life that they start anew after a plowing, and, as sometimes occurs, are so vigorous, that in their second growth they would choke and overwhelm the crops of grain, a bare fallow, with repeated plowing, will prove judicious husbandry. Coarse and adhesive earths are often not sufficiently subdued by one plowing to carry a crop of small grain, and cannot be occupied by a hoed crop. In all these and analogous cases, the system of fallowing may be not only expedient, but necessary.

The idea which I embrace, in the general term rotation of crops, includes the intervention of fallow crops, which are the substitutes for the bare fallow. Except those natural meadows, the native fertility of which is preserved by periodical flowings, and the turf is kept loose and open by these causes, all grass grounds require occasional renovation. Even these natural meadows, may be at times aided by a top dressing of compost, rotted or special manures.

Where a meadow exhibits evidences of deterioration, by the decrease in the product of hay, by the appearance of weeds and foul vegetation, by the dying out of the nutritious grasses, and the binding or tightness of the turf, it requires breaking up.

If a great necessity exists for the hay, the breaking up may be postponed a year or two by a resort to the courses I have already

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described, scarifying the sward, and by top dressing. When this does occur, the earlier the measure is adopted the better for the future productiveness and value of the farm. The chief objects which should be contemplated in this practice are, the extirpation of pernicious herbage, and the increased fertility of the soil. The first must be attained by sufficient plowing, by the culture of hoed crops, and the use of subduing and cleansing crops; and the second by the decomposition of the sward, by the addition of fertilizing appliances to the land, by an increased depth of soil, the result of deep and subsoil plowing, and by opening the earth and augmenting its friability.

In this subduing and renovating system, oats and buckwheat are peculiarly adapted to moist and heavy lands. Wheat will answer for this purpose, if the soil can be rendered sufficiently friable. Peas, are one of the most efficient cleansing and renovating crops. Turnips, upon a suitable soil, are among the most valuable subduing agents. They succeed eminently upon low and rich land, and leave the earth in a fine tilth for other crops.

Potatoes were formerly cultivated with manure on land of this quality, and were esteemed the most effectual subduing crop. In the absence of the potato culture, it is now more difficult to apply manures to these lands. Green manures are not appropriate to the small cereals, which will flourish in these situations, but if used, they should be plowed under when applied, and the land should be plowed a second time before being stocked. Sheep and horse dung are the most congenial to this land. Compost and rotted dung, and special manures may be used upon the crops, and a top dressing after seeding may be advantageously applied.

When the soil is suitable to corn or roots, the system to be pursued is simple and obvious. Corn, potatoes, and most grain or roots, may be appropriated to this land as fallow crops, and the corn may be planted the first in the series of crops, with or without barn yard manures, although the use of manures would be preferable. The roots, except potatoes, should be planted only with this manure. All the special manures may be applied in connection with all of these crops. If barn yard manures are

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not used the first season, they must be applied the succeeding year. No fixed period can be designated for which land should be kept in tillage in this system. This prominent rule must be regarded; let it be continued until the innutritious vegetation is destroyed, and the complete decomposition of the turf is accomplished. One year will often be sufficient for the attainment of this object, and in other instances, a second or third crop is requisite.

The land, before being returned to meadow, should be reduced to a fine tilth, and have acquired, by the use of manures, a condition of increased fertility. The aggregate of the fertilizing principle imparted to the earth, by the decomposition of the vegetable matter in a heavy turf, is immense, and this result is one of the most important effects of the system of rotation in crops. When the land has become sufficiently subdued and enriched, it should be copiously seeded and stocked down, to remain in meadow until its grass yielding qualities are again exhausted. This tillage has failed, if the land, on being restocked, is not improved in every respect, in the increased depth and friability of the soil, and in its general fertility. Every farm, by this system, thoroughly and skilfully conducted, may be maintained in a state of constant and almost indefinite progression in its fertility and productiveness.

This process should not be delayed after the meadow has become unproductive from the causes already described, nor when the land is broken up, should a course of tillage be continued, until its strength is worn out, and when, at length, laid down again to grass, it is left in a more enfeebled and exhausted condition than before the rotation commenced. Stock the land whilst the soil is in full heart and vigor.

In England, turnips are the important basis of their system of rotation of crops, which has, in that country, acquired great perfection and exactness. Our climate does not allow the adoption of that culture, to the extent, and under the circumstances in which it is pursued in England.

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Corn.—Civilized man owes to the aborigines of America his acquaintance with this inestimable grain, and a knowledge of its culture and great importance as an article of human sustenance. It appears by the census of 1850, that corn, in the extent of its cultivation and value, far exceeds any other crop cultivated within our national limits.

The number of bushels of wheat produced in our whole territory, in the year preceding the 1st of June, 1850, was 100,485,944, while the aggregate of corn was 592,071,104 bushels. The estimated value of the wheat was $100,485,944, that of cotton $98,608,720, and that of corn $296,035,502. The land appropriated to the culture of wheat was 11,000,000 acres, to the culture of cotton, 5,000,000, and to that of corn, 31,000,000 acres. The magnitude of this crop, and its proportion to other crops, are annually augmenting. It must be regarded as the great and essential crop of this continent.

Corn is adapted to almost every variety of soil, except stiff clays and wet lands, but is peculiarly congenial to sandy loams. In its varied kinds, corn adapts itself to every climate of our country, and may be favorably cultivated in almost every district. In the selection of the variety to be planted, reference should be had to locality, and the objects to which it is designed to be appropriated. This question must be decided by experience, or intelligent information as to particular kinds. The yellow varieties are in general used for field culture in this State and New England. In these latitudes it is very important to cultivate the kinds which combine the quality of early maturity with productiveness. A small cob is a very desirable peculiarity, as it dries more rapidly than the large, and is less liable to heat in the crib. In our short seasons, the large cobbed corn is liable to not fully mature, and the cob retaining its juices, ferments and injures the grain.

The small golden Canada ripens early, but is not prolific. The common Dutton, I think, has too large a cob, and is exposed to the above objection. The family of eight rowed corn, derived probably from the King Philip corn, which was found among the Indians at the settlement of New England, are highly esteemed

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for their prolific and hardy qualities, and early maturity. A corn is cultivated in Vermont and the adjacent districts, known as the improved Dutton, which combines as many excellent properties as any variety in my knowledge.

The Tuscarora, Early sweet corn, and early Canada, are the most appropriate for garden culture. The large and late Sweet corn contains a great amount of saccharine and nutritious matter, and I have long considered it highly suitable to field culture for fattening swine. This kind is worthy of cultivation, to be cut green and dried for culinary purposes. It also yields a larger proportion than most other corn, of rich and tender foliage for fodder.

The corn culture is peculiarly calculated to form the basis of the simple system of rotation, to which I have just adverted. The farmer is constrained, if he desires an ample harvest of this crop, to supply a heavy coating of manure, and to suppress, by the energetic and constant use of the hoe and cultivator, the growth of all noxious weeds. The ground is thus left rich, in the finest tilth, and admirably prepared for a crop of wheat, oats, or barley, and is in a condition to be profitably seeded. Corn is a rank and insatiable feeder, and will prosper on most soils with the highest manuring. The exception, in lands favorable to this crop, are light and sandy soils. Upon these, large applications of barn yard manures, especially in an unfermented state, expose the corn to increased danger from the effects of a dry season. The injurious influence of fresh manure in drought may be avoided by thorough intermixture—repeated harrowing and occasional plowing. Actual experiments prove this manure to be more than doubled in value by thorough intermixture alone. I have repeatedly urged the importance of reducing the earth to a fine tilth by complete pulverization, but the idea cannot be pressed with too much force. To the corn crop, the system may be applied with peculiar advantage. Pulverization of the earth, and the mingling and perfect incorporation of manures with the soil, may be regarded as a fundamental principle of judicious and successful tillage.

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No crop resists the influence of drouth with so much vigor as corn. The innumerable filaments of its roots spread in every direction, and penetrate deeply in pursuit of nutrition and moisture, while its luxuriant foliage attracts the moisture of the atmosphere, and drinks up the copious dews of heaven, which always prevail in a season of drouth. On sandy soils, rotted or compost manures plowed under, are profitable, but plaster, ashes and lime, and special manures generally, are of the highest value to this crop. The special manures may be plowed or dragged in, be deposited with the seed, or applied superficially to the growing crop. This last application should be made to the crop under all circumstances, and usually twice in the season; once at the first hoeing, and soon after the shoots appear, and again at or near the second hoeing, when the earth is freshened by the cultivator or hoe. A spoonful of the plaster is sufficient for each hill, or an admixture of plaster and ashes in about equal proportions, with a slight addition of lime. Apply about the hill a small handful of the admixture. Wakefield's planter has an excellent appendage by which plaster, or other pulverized substances, may be deposited at the time of planting, over the seed, with a little earth intervening between the seed and the manure. Some caution, as I before stated, should be used in not bringing the crude ashes, from its caustic nature, in contact with the plant.

Coarse and strawy manures should always be spread before plowing, and covered by the furrow slice; and many farmers adopt this mode with all manures. It is certain that the vigorous and penetrating roots of corn will eventually reach the deposit of manure, even through a tenacious green sward inverted. When, however, a want of native fertility exists in the surface soil, the early growth of the young plant will often be feeble and sickly, and when the roots at length reach the manure the season may be too far advanced for the growth of the plant to be retrieved, and a scanty harvest in that case must be the result.

A mode of tillage is becoming somewhat prevalent, which obviates this difficulty, although objectionable, perhaps, in other respects. Old manure or fine dung, such as sheep or horse dung, not mingled with straw, is strewn upon the plowed ground, and

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is carefully incorporated with the mold immediately before planting by the harrow. The corn crop has the ample and continued benefit of the manure through the entire season, when it is applied in this manner. The objection to this practice is, that the ammonia and other fertilizing elements escape although slightly I think, if the work of harrowing is well and promptly performed. A top dressing of manure may be very efficiently turned under, for a corn crop, by a "gang plow," particularly on old land where there exists no inverted turf, which might be disturbed.

The deposit of a small shovelful of rotted manure in the hill gives a rapid and vigorous impulse to the young shoot. This is a slow and laborious process, and often impracticable from the pressure of other work. I regard the depositing of manure in the hill to be only useful in imparting an early and healthy start to the plant, but in other views, it is the least efficient and profitable mode of applying manure to this crop, as the roots of the corn soon pass beyond its influence. It would, I think, be more likely, after this period, to aid the plants growing in the adjacent hills, than those in the hill where it has been deposited.

The roots of corn are sturdy and powerful, and will penetrate through strong obstacles, still their progress is much facilitated by a loose and deep soil. Hence, deep plowing and the use of the subsoil plow, are of the utmost importance in the culture of this crop.

At least twenty-five loads, of thirty bushels each, of stable manure, should be applied to an acre for corn; but fifty loads would be still better, and far more remunerative. It is wiser and more profitable to manure one acre abundantly, than to dress five acres insufficiently with the aggregate quantity. The immediate profit from the corn crop will be more abundant, and the subsequent and enduring advantages to the soil much greater. Whether the land be plowed in the spring or autumn, it is indispensable that the earth should be dragged immediately before the corn is planted, in order to have the soil fresh and the weeds suppressed. A clover or grass ley is the most appropriate land to corn, if the earth can be adequately pulverized before planting. This re-

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mark applies with peculiar force to sandy land. The turf stimulates the action of plaster, or rather, it may be said, the plaster acts the most efficiently on sward land. The decomposition imparts aliment to the plant, and the vegetable matter, turned under, shields it from the effect of drouth. With but a trifling expense in the culture, I have raised fifty bushels of the choicest quality of corn to the acre, upon a pine plain pasture, with the aid of gypsum alone, on an inverted turf.

The corn crop encounters numerous enemies in its early vegetation and growth. Birds, worms, vermin and slugs are the most formidable. Encircling the field with a string, and if the area is large, occasionally traversing it laterally, with the aid of scare crows and bits of tin suspended from poles, rattling and glimmering in the sun, is a perfect protection against crows, but blackbirds and jays are deceived by none of these devices. Steeping the seed intended for an acre or two, from twelve to twenty-four hours, in a solution of a few ounces of saltpeter, to which has been added half a pint of tar, softened in boiling water, and before planting, rolling the corn in lime or plaster, will almost uniformly preserve it from birds, worms and squirrels. This process also quickens and invigorates the first growth of the plants. If by these or any other expedients, birds can be repelled from the seeds, their presence is desirable in a corn field, as they destroy an infinite number of bugs, worms and insects, which commit the most destructive ravages upon the crop. When peculiar exactness is desired in placing the hills of corn, the land may be rapidly marked out by a simple machine, made of a plank or scantling, with teeth arranged at proper distance, and handles attached to guide it. Several rows may, in this way, be traced by one transit of a horse across the field. If second lines are drawn in the same manner at right angles with the first, the points of intersection will be the place for the hills. If it is intended to deposit dung in the hills, these lines may be formed by a light plow, and the furrows will supply a sufficient depth for the dung. The great advantage of this mode of planting, is in the circumstance that the rows will run both ways, and the operations of the cultivator will thus be much facilitated. When, however, it is not intended to dung in the hill, I doubt whether

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the enhanced labor and expense of this practice are indemnified by its convenience, as the corn must be planted by hand, a slow and expensive process, instead of the planter, which is rapid and cheap in its execution.

I regard the introduction of the corn planter, among the most valuable and progressive improvements in the culture of this crop. This machine immensely economises expense and time, and few hired laborers perform the process of planting with the hoe with equal skill and accuracy. A man and horse can perform with ease, the work of eight or ten men in planting, and if we add to this, the saving that is effected by the machine of Mr. Wakefield in depositing the plaster, the economy is still more striking. These machines may be adjusted to planting at any distance, either in hills or drills. They plant also the pumpkin seeds, in proper proportion at the same time with the corn. They may be used upon every description of land, except that which is excessively stony, or filled with roots, stumps, or bushes. After the experience of several years, the only disadvantages I have detected in the use of the planter, which detract from its value, are these :—It cannot be relied on for planting accurately, when the seed is soaked or rolled in plaster, and when corn is planted by the machine, the rows run but one way, and the cultivator can, therefore, only operate on two sides of the hills. The first of these objections is chiefly obviated by the improvement effected in the Wakefield, and probably other machines, and the second does not exist when the corn is planted in drills, and for reasons which I shall elsewhere explain, I do not consider it very essential when the corn is planted in hills.

The seed should be covered with fine earth to the depth of about two inches, but, in soils in which clay heavily predominates, the covering may be less. The rows are generally placed from two and a half, to five feet asunder, the distance being determined by the variety used. If the corn is planted in hills, the distance between them each way should be about three feet. When occupying warm, sandy soil, the rows, if single, should run east and west, and on other land in the opposite direction. If the form of

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drills is adopted, the rows should be four feet apart, and the plants about fifteen inches.

The practice of planting corn in drills has not been extensively adopted in our agriculture, although the extraordinary yields of corn, which have been reported, have usually been realized in the this husbandry. That it possesses many advantages is evident. The plants crowd each other less; the crop is more exposed to the influence of air, heat and light, each of which is an important agent in promoting the growth of all vegetation; a largely increased number of plants will occupy the land, and a great saving of seed will be secured.

In planting corn, a large excess, double or even quadruple the quantity of seed required should be used. This partially provides for worms and birds. At the second hoeing, if all remain, a great disparity will be observed in the appearance of the shoots. Preserve the most vigorous and healthy, and eradicate the remainder, leaving three or four of the most thrifty in each hill.

The seed corn should be selected with great care. Preserve for seed, from stalks only which bear two or more ears, and it is usual to break the tips of these off before shelling. It is highly important to change your seed after a few seasons, introducing new seed not only from a distance, but such as has grown in a different soil and climate. The first hoeing of corn should be given soon after the shoots appear above the surface, and let it be followed by a slight dressing of plaster, or the admixture of plaster, lime and ashes. This application not only stimulates the growth of the plant, but acts as a considerable protection to it against worms and slugs. The dressing should be repeated in about a fortnight. A small hand harrow may be used at the first hoeing. The cultivator is the important and efficient implement in the corn culture, and when skilfully and thoroughly applied, the manual labor of hoeing is very slight. It is scarcely more than a simple dressing about the roots of the plants. The cultivator may operate very near the plant, especially when the rows run but one way. If it severs some of the superficial filaments of the roots, no particular injury results, as this circumstance produces a ten-

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dency in the fibers to run downward, where they receive superior benefit from the buried manure and moisture. The small one-horse plow should rarely be introduced into a corn field, and never unless the land is damp, rough, or deeply infested by weeds or bushes. It runs too deep, cutting off the radical roots, disturbing the inverted turf, forming a duct to carry the moisture from the plant, and throws up too elevated ridges. Corn should never be hilled, or very slightly, except on moist land, and in that situation the ground is better adapted to some other crop. Let the surface, at the close of the culture, be left as near level as possible. The cultivator, in addition to its use in connection with the processes of hoeing, should be repeatedly run through the rows while the plant is growing. This practice is peculiarly useful in hot and dry seasons.

Unless there is impending a danger of frost, I prefer to allow the corn to stand until most of the ears are ripe. It may be cut safely after the kernels begin to glaze, but I think, when cut at this period, the grain is not equally sweet and perfect, as it becomes if permitted to stand until nearer matured, it shrinks more, and has greater liability to heat in the stook. The stalk should be cut near the ground. A sickle and corn hook are useful implements for this purpose, but the most efficient instrument I have used, is the heel of an old scythe, about a foot long, firmly attached to a straight stick about eighteen inches in length. Every farmer understands the mode of stooking corn stalks.

I esteem good corn stalks, cut at the proper season and well cured, better for cattle, and especially milk cows, than any other fodder. They possess properties peculiarly congenial and favorable to neat cattle. The value of the stalks, under ordinary circumstances, may be estimated as equivalent to the expense of tilling the entire crop. If the butts of stalks are large and fibrous, and refused by cattle, they may be cut fine by the cutter, and will then be eaten with avidity. They are rendered still more palatable if strewn with cob meal or bran. After being cut they may also be boiled or soaked before feeding. Corn is sown broad cast for fodder to great advantage. For this purpose, three and a half or four bushels of seed to the acre is required, and it may be

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sown at intervals until quite late in the season. It is dragged in and covered by the same method as other cereals. When cultivated in this manner, and cut in the full juice, the stalks afford a most excellent fodder. Corn should not be husked until fully ripe and perfectly dry, and should then be spread or stored in a crib with much care. No other grain is so liable to be injured by heating.

Great economy is effected by the use of a corn sheller, instead of thrashing the corn by the flail. I cannot concur in the opinion which seems to be entertained by some agricultural writers, who question the value of cob meal as a food for animals. Analysis has established the fact, that the corn cob itself contains considerable nutritious qualities. In addition to this positive nutrition, which is, of course, secured by grinding, the cob, when ground with the corn, relieves the latter from its heavy and cloying properties, which render it a somewhat unsafe feed, particularly for horses.

Pumpkins may be planted among corn, not only without injury to the crop, but upon light soil, I think they exert a favorable influence upon its growth. The numerous and broad leaves of the pumpkin vine, derive much of the nourishment of the plant from the atmosphere, and spreading a mantle over the earth, protect the corn from the scorching and drying effects of the sun. An opinion is entertained, however, by some observing farmers, that pumpkins, although a valuable crop, are injurious to corn, and affect it in the same manner as any other vegetable growth or weed would do, and thus decrease its product.

The profits realized from the pumpkins is often an important item in the productiveness of the corn field. This plant should not be allowed to stand thicker than one in the third or fourth hill of corn. The pumpkin is of great value for feeding milch cows, and fattening cattle, and is an excellent article, fed raw or boiled with vegetables or apples, in the first stages of swine fattening. The seeds sometimes injuriously affect the urinary organs of cattle, and when eaten copiously are destructive to poultry. The intermission in their use for a few days will usually correct the evil.

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Wheat.—Sandy loams are the most appropriate lands for the wheat culture. Loams, in which clay prevails, without predominating, are also well adapted to it. Clays which cannot easily be made friable, and are peculiarly affected by the heaving of frost, are not favorable to wheat. Clayey soils, which are exempt from these properties, are not unfavorable to the wheat culture. This crop is still less adapted to sand, except upon a heavy clover ley, and even then the ground may be more profitably occupied by many other crops.

In New England, and some sections of New-York, districts which at one period were distinguished for their abundant wheat harvest, the culture of this crop for many years was nearly suspended. It is now gradually recovering its position in the husbandry of these districts. Spring wheat is, however, generally cultivated in this territory. These facts have excited much discussion and theorizing, as to the causes which have produced them. The failure of the wheat crops originated, I conjecture, primarily from the exhaustion by successive tillage of the peculiar elements in the soil essential to its growth. These elements, after a series of years, by natural renovation, have been restored to the earth, or a changed culture has provided substitutes. This impediment to the wheat culture was succeeded by the infliction of the fly, rust, the wheat midge,* and other insects and diseases. These embarrassments still partially exist, but science and experience are now able materially to avert their effects.

Lime is a very prominent and important constituent of the wheat plant. It is supposed by many practical farmers, as well as theoretical writers, that by the exhaustion of this ingredient through a long succession of crops, the soil may have lost its adaptation to wheat, and to this fact they impute the failure of the culture. It is certain that the application of lime is of the highest utility to wheat land. It may be used in large quantities, incorporated with the earth before sowing, or it may be sown broadcast upon the surface, or the seed wheat may be wetted and rolled in the lime. Upon no land can lime be applied with greater bene-

* Commonly called "the weevil."

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fit.* A high degree of richness in the soil, which will produce a rapid and vigorous growth, tends to exempt the wheat from the attacks of the fly. Salt, copiously applied the preceding season, we have already seen, is regarded as a security against the rust or mildew. Ashes strewn upon the growing wheat, have effectually restored a sickly and yellow crop to a healthful condition, when suffering from the ravages of worms and slugs. A very early sowing of spring wheat, causes a maturity of the grain before it is exposed to the hot and "muggy" weather of July. The very destructive prevalence of the rust in numerous fields of wheat and oats, which came under my personal observation during the unprecedented heat and drouth of 1854, seems to disprove the theory, that the rust is only incident to a union of hot and wet weather. Local circumstances, however, such as a situation of the field which prevented a free circulation of air and wind, might have produced the result in these instances.

In the culture of spring wheat, very late or early sowing, it is believed, generally avoids the wheat midge.† The first practice seems to anticipate, and latter follow, its presence. The scientific and sagacious investigations of Doctor Fitch, in reference to the history and habits of this pest to our wheat culture, it is hoped will throw important and useful light on the subject, and aid in our escape from its ravages.

These enemies to the wheat crop, although less destructive than formerly, and which may be partially resisted by these and other expedients, which experience and science may suggest, will continue to impede somewhat the culture of this crop; but when successful, it so gratifies the pride of the farmer, and is so remunerative, that he will not be deterred from pursuing it.

Smut is another very offensive and pernicious disease to which wheat is subject. This may be usually avoided by care in the selection and cleansing of the seed, which should be carefully riddled

* Lime is considered in some parts of New-England a preventive from the wheat midge. When the insect has appeared, it is the practice to sow broadcast, about a bushel of lime to the acre, on the wheat, just as the crop is heading. The lime should be applied after a shower, or when a copious dew is on the plant.

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and thoroughly washed in pure water. Wheat is very liable, particularly upon clayey lands, to be injured by the heaving of the earth from the action of the frost, but it is still more exposed to the effects of the cold and harsh winds of spring, and the ice which forms at that season upon the surface water, and concentrates the sun's rays, burning and killing the tender shoots. If a light roller is passed over the crop when the grain first appears, this risk will be materially lessened. The roller compresses the soil about the plants, and reunites the filaments of the roots to the earth. It is also useful, particularly if the land is seeded in the spring, to lightly harrow it at this season. If circumstances permit, great advantage to winter grain, as well as meadows, will be derived from scattering pine boughs fed to sheep in the winter upon these lands. They prevent the snow from blowing off, and leaving the surface bare, the sheep tread the snow down and thus retard its thawing, and profusely spread their manure over the ground.

The earth for a successful tillage of wheat should be in a fine tilth, free from weeds, and possessing either naturally, or by artificial appliances, a vigorous and quick soil. Wheat will not flourish upon light or feeble land. A clover ley, when it can be delicately pulverized, is an excellent basis for a wheat crop. If it does not possess sufficient native fertility, this may be increased by a moderate dressing of compost or rotted manure, incorporated with the soil by the harrow or gang plow, and a top dressing of lime, ashes, charcoal, or bone dust, or if the land is appropriate, of gypsum. When a strong necessity exists, (and I think the practice should not be resorted to under other circumstances,) of applying to this crop green manure, it should be plowed under. When fed too rankly, wheat is apt to expand into the growth of straw without producing a crop of grain. Hoed crops, and especially corn, leaves the soil in a fine condition to carry a wheat crop, and the latter is well adapted in a short rotation to stocking the land. If practicable, wheat should be sowed immediately after the ground is plowed. The land, if not in a pulverized condition, should be thorougly dragged before the wheat is sowed, and afterwards let the harrow be used until the seed is well covered. This

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course renders the earth fresh, loose and friable, without trampling the seed too deep for vegetation.

It is advised by some writers to sow the seed of wheat and other cereals upon the furrow slice, in order that the movement of the harrow may deposit the seed in the depressed space between, and thus secure the advantages of the drill system. The objection to this mode is, that the seed of most grain may be buried too deep, or if this is avoided, that the plants will stand too thick, and thus crowd each other.

Machines are very extensively used in Europe for sowing grain both broadcast and in drills. Drilling in wheat is a very favorite system in the most highly cultivated districts in England, and is occasionally pursued to such extent and perfection, that the intermediate space between the drills, of six or twelve inches, is carefully hoed. The theory of this tillage, which renders it so highly popular, is, that it economises seed, and by an increased exposure of the growing crop to the influence of the air and sun, quickens its growth, and increases the product of the crop, and that the grain is less liable to lodge or be affected by the rust. Drilling has been partially, and in some districts largely introduced into our husbandry, and with general approbation. The quantity of seed used in sowing wheat is very unequal in the practice of farmers, and in different countries, and in various districts of the same country. The amount deemed necessary in England, if used in our soil and climate, would produce probably nothing but a luxuriant growth of straw. Some practical men assert, that two or three pecks of wheat is sufficient to the acre. An intelligent writer states, that the best wheat crop he ever harvested was the product of a field sowed at the rate of half a bushel of seed to the acre.* Others use two and a half bushels. The proper medium is, I think, from four to six pecks. The quantity of seed used must be determined by the character of the soil, and the time it is sowed. The amount necessary on rich land, sown early, is much less than when the land is light and poor, or the sowing late.

* Dudley's Husbandry.

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Winter wheat should be sowed about the first of September, and spring wheat as early as the ground can be worked; but if this period is past, delay the work until about the 20th of May. Sowing in the interval, it is believed, increases the exposure of the crop to the ravages of insects and diseases. Unless the seed is perfectly clean, wash it thoroughly in pure water. The smut, light kernels, and foreign seed and foul substances, will rise to the surface, and may readily be removed.

Soak the seed from twelve to twenty-four hours in brine, urine, a solution of saltpeter, or a similar composition, and immediately before sowing, mix the seed thoroughly with lime or plaster. This facilitates the sowing, and these combined processes promote a prompt germination and healthy growth of the young plant, and to some extent preserve it from the attacks of worms and insects. In the selection of the kind of wheat proposed to be cultivated, we must be guided by our own experience or reliable information. The same variety often exists in various localities under different names. A wheat which has been cultivated for a series of years in the same district, with great success, will often gradually deteriorate and fall into disrepute. This fact, which frequently occurs, I impute to its becoming acclimated, and to the unfavorable effect upon any grain of a long succession of culture in the same region and on similar soil.

When the Black Sea wheat was introduced into the territory in which I reside, it yielded from fifty to sixty bushels to the acre, with no extraordinary tillage. Now the product of this grain scarcely averages fifteen bushels to the acre, with the same culture and equal soil. Great care should be taken to avoid this evil, by the importation of new seed from a distance, and the ap propriation of seed to a land unlike in its qualities, that to which the seed has become habituated by a succession of crops.

Wheat should be harvested at the period when it is neither unripe or too fully matured. In the former case the berry shrinks and loses much of its beauty and value, and in the latter, immense waste is incurred by the shelling of the grain. The time for cutting wheat, which I think combines the most advantages,

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is when the berry first commences to harden. When in this condition, it may be bound into sheaves as fast as it is cradled. Wheat is very liable to be injured in the stook by protracted wet weather. The general practice in forming the stook, is to collect in a circle about a dozen sheaves, covered by a single sheaf inverted and spread over the whole. This contrivance affords a partial protection, but the grain often heats and grows. I consider it a safer plan to place the sheaves in rows two abreast, the bottoms standing a little apart, so as to leave an open space between for the circulation of air, with the tops resting on each other. It is an additional security to press the heads together by the hand. This mode effectually sheds the rain, and exposes the wheat to the more perfect influence of the air and sun.

In storing unthrashed wheat it is very important that it should not be placed upon a mow of new made hay, as there is great danger of its being injured by the heating and fermentation of the hay, and the effluvia that escape from the latter, often impregnate and taint the grain. I regard thrashing wheat, in small crops, by machinery injudicious. Where an urgency exists for the immediate use of the grain, barn room is wanting, or under other peculiar circumstances, it may be expedient. The expense of thrashing by hand is about the same as when a machine is used, but the straw appears to be made cleaner by the flail, and the fodder is preserved with much greater economy. In addition to these very proper considerations, the work may be performed by hand in storms and during leisure intervals. These remarks, of course, do not apply to farms upon which wheat is extensively cultivated. If the thrashing is delayed until winter, all grain should be carefully watched, to guard against the depredations of rats and mice, and wheat will be found peculiarly subject to their attacks.

In some sections of New England and New-York, the introduction of the Black Sea wheat was the first step toward the restoration of the wheat culture. It is hardy and vigorous, and little exposed to the ordinary attacks to which most other varieties of wheat are liable. It is considered to be singularly exempt from the wheat midge, which has been found in many districts the great

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impediment to the wheat culture. The Black Sea wheat has a small berry, of a dark color. The flour it produces is dusky, but sweet and nutritious. The Tea wheat, Italian and Fife, are all new kinds of spring wheat, and are highly esteemed.

In my own section, a spring wheat, known as the White bearded wheat, has been recently introduced, and is rapidly supplanting all other varieties. It was brought from the town of Hoosic, Rensselaer county, and is said to be in extensive culture in that region. The berry is large, white, and beautiful, and remarkably clear and bright. The flour it affords is nearly equal to the Genesee wheat, and the grain commands with our millers the same price. The White bearded is at this time more prolific and hardy than the Black Sea wheat. I cultivated the two varieties the last season, in the same field. They occupied similar soil, and I gave them the same culture. The former bore the drouth much the best, and stood up bright and erect, without being affected by the rust, although the Black Sea wheat was very materially injured by it. The accurate sowing of wheat, and indeed of every kind of grain, is a very difficult, but most important process in husbandry, which should be familiar to every farmer. It is one of those operations, a knowledge of which can be attained with far more precision by practical instruction and experience, than by any information that books can communicate. A man may be made familiar with the art, by one hour devoted to the practice, under the direction of an accomplished sower.

Rye.—The culture of this grain is recovering from the depression and neglect which it has experienced, and now promises to occupy the important position in husbandry to which it is entitled. Rye has been immemorially cultivated in the north of Europe and Asia, and constitutes, even among the wealthier classes, in those regions an important article for the sustenance of man. The rye and indian bread of our ancestors maintained the highest repute—but the superior refinement of this progressive age has banished it, to a great extent, from the tables both of the rich and poor. When properly baked it forms a highly nutritious and excellent bread.

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Rye is also a most valuable grain as an article of food for horses, cattle and swine. It is a hearty and vigorous feed for teaming horses, when ground coarsely and mixed with cut straw. Corn in the cob, ground with rye, and combined with rye straw cut fine, affords a very superior provender for working horses. The straw is a good equivalent for hay, and imparts to the hair of the animal a peculiar sleek and glossy appearance. Rye, either ground or boiled, and mingled with potatoes, apples or pumpkins, constitutes a hog feed of the richest fattening qualities. This grain flourishes upon almost every soil. Upon sandy barrens, where wheat and oats utterly fail, rye is often a remunerative crop; and upon land too rich for wheat, rye grows rankly, without lodging, and succeeds. It flourishes on reclaimed bogs, which have been thoroughly drained and subdued. It is not advisable, however, to cultivate rye upon soils favorable to wheat. There exists many and peculiar advantages in the culture of rye. Its fitness to soils, upon which most other grain will not succeed, makes it valuable for the renovation and stocking of those lands, especially sands. It may be got in, either early or late in the season, as convenience dictates. The product of straw in a rye crop is very great, and is constantly becoming more highly esteemed as a fodder. It already commands a high price for the manufacture of paper, and other purposes in the arts. Rye is hardy, and easily cultivated.

Winter rye should, if possible, be sown about the 1st of September, and, if this cannot be done, let the sowing be postponed to the very last days in autumn, before the ground closes by frost. Early sowing secures a firm and deep rooting of the crop, which preserves it from the effects of the severity and changes of the winter, and it is supposed that the sprouts produced from each germ, are far more numerous under this tillage. When the latter period for seeding is adopted, the grain remains in the earth until spring, without germination. If the seed is sown in the interval between the above periods, the filaments of the roots are too tender and young to penetrate the soil deeply, or to become firmly attached to the earth. The crop, under these circumstances, is peculiarly liable to be destroyed or injured by the various pro-

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cesses of nature, which we call "winter killing." This term is somewhat vague, but, in the acceptation in which I use it, embraces not only the effects of the heaving of the land by frost, and of the severe and harsh weather of winter, when the earth is uncovered, but it also refers to the consequences of the blighting winds of spring, and of the ice which forms at that season on the surface water. If the crop has escaped the first of these difficulties, management and care may very essentially aid in its preservation from the effects of the two last. I have elsewhere mentioned the custom of seeding with winter grain on the last spring snows. This operation will be aided, and great assistance afforded the grain in resisting injury from the causes referred to, if a light harrow or roller is passed over a field of winter rye or wheat, at the earliest moment a team may be worked upon it in the spring.

Sheep, also, by treading the moist earth, about the roots of the plants, will essentially aid in the preservation of the crop from the dangers of this season. No injury, but decisive benefits will result to the rye crop, from depasturing it with sheep, in the spring as well as autumn. In addition to the above advantages, sheep feeding upon the rye promote an expansion and more vigorous growth of the roots; the number of sprouts from each germ is much increased; the luxuriant vegetation of the crop, which, by lodging and heating beneath the snow, often endangers the grain, is consumed, and affords a most valuable food to the animals; light and feeble soils are considerably manured, and rendered, by the pressure of their hoofs, of a more firm and compact texture. One of the most successful cultivators of rye I ever knew, habitually allowed his sheep to range upon the crop until the 1st of June.

Like wheat, the quantity of rye necessary for sowing depends upon the time of sowing, and the nature of the soil. One bushel, in early sowing, or upon a rich soil, is sufficient, but, under other circumstances, the seeding may be extended, with profit, to six or eight pecks to the acre. Rye is sown, by some farmers, with corn, at the second hoeing, and worked in, by that process—and

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by others it is sowed with buckwheat, in July. Few soils, I think, will successively bear two crops, preceded by only a single plowing. The land becomes too compressed and heavy for the permeation of air, heat and moisture, while the fibers of the plant will be arrested in their free and necessary expansion in the soil. Rye is sometimes cultivated for haying, or feeding green. Three or four bushels, in this husbandry, should be sowed to the acre. Several crops of excellent fodder may be cut in one season from a rye field.

Spring rye, supposed by many writers to be winter rye, with its habits modified by culture, is now rarely cultivated. I have personally made slight experiments in the cultivation of this crop, which had no encouraging results. The head of the spring rye is small, the straw light and short, and the whole product very small. Still, this crop may be worthy of trial; for if successful, it would occupy the same relation to winter rye, that spring wheat holds to winter wheat, and might prove a valuable substitute for it.

The straw of the winter rye is probably more valuable both in its quality and quantity than that of any other grain. The small Black rye which was formerly cultivated, was succeeded some thirty years ago by several varieties, which were then distinguished as White rye. The berries of this grain were brighter, larger and fairer than the preceding kind, and produced a much whiter and better flour. Within a few years the Multicole rye has been introduced. This surpasses, in every quality of excellence, the former White rye as much as that excelled the original Black rye. The stalk of the Multicole towers far above any other kind, bearing upon a heavy stalk a large pendent head, with a full and beautiful berry. The Multicole yields nearly double the product of any other rye.

Plaster may be profitably applied to the rye crop, in the manner already described, either in autumn or early spring. Rye is not considered an exhausting crop. It may be repeated for a succession of years upon the same land, with better harvests and less deterioration to the soil, than any other crop. The practice,

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however, of pursuing the same crops cannot be commended in any case. Rye should be cut when the joints of the straw are yet green. This prevents a great waste of the grain in harvesting, and the flour from the rye is more delicate and palatable, than when the rye remains standing until fully ripe.

Oats.—This crop in New England, and large sections of New-York, is second only to the corn crop in amount and importance. With us, oats are rarely used as an article of food for man, although in many other countries, it is esteemed of high value for that purpose. This grain is considered the most natural and useful feed for horses, and is the only grain that can be profitably given to this animal in its crude state, without either grinding or boiling. Oats are particularly adapted to cold climates, and flourish in the most exposed and rigorous situations. They succeed best in high latitudes, and upon elevated ground, both in respect to the amount of the product and the quality of the grain. As we recede from these latitudes we find oats become lighter in the berry, and less productive in the harvest. This grain is congenial to almost every soil, but has its preferences. It often grows well on sandy lands, but occasionally fails, where rye would afford a remunerative crop. It generally flourishes on low and moist situations, but sometimes, by a yellow and sickly appearance, indicates that it is suffering from an excess of moisture. Still I think it better adapted than any other grain, to land of this description.

Oats are rank, hardy and vigorous feeders, and seldom suffer from too high fertility of soil. They sometimes lodge from this cause, but do not often run to a superabundance of straw. For this reason, oats should be cultivated on land too rich for wheat. They succeed admirably after corn or other hoed crops, following in the second year, a heavy application of green manure. Oats bear much better than any other of the small grains, to be sowed with barn yard manures. A top-dressing of compost or rotted manures, and most of the special manures are useful to this crop. Gypsum, of course, should not be applied to it on moist ground. In rotations, oats may often very profitably be sowed on green sward. The vigorous and penetrating roots of this grain flourish upon

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the vegetable matter contained in the decaying turf. Oats are often found in this tillage an excellent preparation for a corn crop, and on highly manured, naturally rich, or heavy land, they constitute a valuable introductory crop to wheat. Except upon moist land, oats are generally an unfavorable crop with which to stock down. Oats are sowed in combination with almost every other species of grain. They may even be sowed broadcast with corn, to be cut for fodder. United with peas, in proportion to two thirds of oats to one of peas, they form a most valuable crop. On light soils, oats are advantageously combined with buckwheat, the proportion of seeding being one-third oats.

The ordinary quantity of seed for an oat crop, ranges from two to four bushels. I have found about three bushels to be the proper application on land of ordinary strength. This crop should be got in as early as possible, although it will mature if sowed quite late. When sowed early, the product is usually much greater, and the grain itself heavier and more nutritious. It is generally advisable to cradle oats, but if they are lodged or tangled by the trampling of cattle, they may be conveniently mowed with a scythe. In either case they should not be allowed to stand after they are fully ripened. If the straw is still green or juicy, the oats should remain until dry in the swath, and if they have been mowed, should be left on the land until they are cured sufficiently for safe storing. When cradled, they may be bound into sheaves, after lying on the swath, if green, a short time, and stooked in the manner described for wheat, and left to fully cure before housing. Oats should be carefully freed from all moisture before they are hauled to the barn. The straw of oats, if skilfully cured, is an excellent fodder. When oats have been passed through the cutting machine unthrashed, the grain and cut straw being thus mingled, form a very valuable and cheap feed for horses. Practical experiments appear to have decided, that oats afford a more nutritive and invigorating feed for a working team, than an equal weight of corn.

The following mode of storing oats before being threshed, will be found a very effectual security against rats and mice:—Place the butts of the sheaves in the mow on the outside in rows, and

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bring the heads together in the center, pressing each sheaf down firmly with the knee as it is deposited. It seems difficult for the small animals to penetrate the barrier thus formed. My own oats have rarely been attacked when stored in this manner. This grain is regarded generally as a very exhausting crop.

Barley.—This crop is even more congenial to cold, rigorous climates than oats. It flourishes upon the Himalaya mountains, at an elevation of ten thousand feet above the level of the sea. I saw, during my survey of Essex county, in high valleys, among the Adirondacs, luxuriant crops of barley, where corn was never planted. Several varieties of barley exist in this country, but all, I believe, may be subjected to the same tillage. This grain is not extensively cultivated in this country, although I can perceive no reason why it should not be elevated in our husbandry to a position alone subordinate to the culture of wheat and corn. In addition to its uses for distillation, barley is valuable as a food for man, and is second only to oats as a provender for horses and cattle. It is also highly useful for fattening and feeding swine, and its straw affords an excellent fodder. Barley is less exposed to the ravages of insects and disease than wheat. It is easily cultivated on appropriate soils, and is prolific as a crop. In the milder districts of Europe, and even in the south of England some varieties of barley are sown as a fall crop. This tillage may be pursued in any country which is not exposed to severe changes of freezing and thawing, that produces heaving of the land, or where the earth remains covered by the snow during the winter.

Barley requires a warm, light and quick soil, in good tilth and condition. It delights probably, the most in a sandy loam. It follows most successfully a hoed crop, when the earth is left in a fine tilth, and free from weeds. This crop suffers peculiarly from a foul soil. It requires a rich earth, although the manure should have been applied to the preceding crop. Instances of abundant crops, however, are reported, which were raised on land freshly manured. The risk in pursuing this tillage is, that the rank growth the manure produces, will make the crop liable to lodge and lead to the formation of straw rather than grain. Two bushels to the acre is near the proper quantity of barley for sow-

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ing. The crop stands about three months on the ground, and should be sowed as early as practicable in the spring. Barley is disposed to shell when fully ripe, and great care, therefore, should be taken to harvest it in season. When the head begins to assume a reddish cast, and drops falling back upon the straw, the proper period of harvesting has arrived, and this should be promptly attended to, as the grain, after this appearance is exhibited, rapidly matures.

The crop may be mowed or cut with the cradle, and is almost immediately ready for housing. All stock are particularly fond of barley straw. When coarsely ground, barley affords an excellent feed for horses and cattle, and is nearly equal to corn or peas for fattening swine, either in meal, or boiled with vegetables or apples.

Millet.—The American farmer has little knowledge of this valuable grain. It is alike important from the immense harvest of seed it yields, and its great value for fodder, whether cut green for soiling or dried as hay. While standing in the field, millet, with its full, golden head, hanging down from its rich exuberance, presents a beautiful and glowing aspect, scarcely equalled by any other crop. The straw grows from three to five feet in height, and bears a large and pendent head, yielding innumerable seed. In its foliage and growth millet compares to a delicate and miniature corn-stalk, but richer, more tender and succulent.

This grain requires a light, warm and rich soil. It grows rapidly, and when cultivated for its grain product, is harvested about three months from seeding. It is not materially affected by the drought. Instances are recorded of this crop yielding seventy-five bushels of grain to the acre, with a ton and a half of fodder, equal to the best clover hay. When sowed for the grain harvest, about half a bushel of seed, broadcast, is sufficient for an acre. Many sow less than this. If intended to be cut for fodder, five or six pecks of seed will be necessary. Four or five tons of superior fodder may by this tillage be realized to the acre. Those who have tested its value for this purpose, pronounce that it may be cultivated with greater economy, and is more productive and valuable for cattle, than clover.

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The grain is esteemed equal, in its nutritive qualities, to corn, for feeding every description of animal. The great impediments to the cultivation of millet as a grain crop, are its peculiar exposure to the depredations of birds, which it seems eminently to attract, and its great liability, if permitted to stand until fully ripe, to waste the grain by shelling. Early harvesting will in a great degree obviate these objections. Millet may be sown at any time previous to the 1st of June.

I have been led to conjecture, from mere inspection, and observing the striking similarity in their appearance, that Millet may be an improved variety of the barn or pigeon grass, with which all farmers are familiar. I may here remark, that every farmer who raises poultry, will be wise to secure for their feeding a few bushels of the seed of this grass, which may be done with little labor or expense.*

Peas.—This crop is adapted to nearly every soil, but is tilled the most successfully on a moist and fine earth, in a medium condition as to fertility. The smaller kind of peas grow well on sandy land, but are liable to be injured by very hot and dry weather. This crop is invaluable for its subduing and cleansing properties, always leaving the land in a neat and free condition. Peas and oats combined are a favorite crop. The former are a substitute for corn in hog fattening, and may be favorably cultivated where corn will not grow.

The seed necessary for the pea crop, is from three to four bushels. If thickly sown, the peas not only more effectually cover the ground, and thus keep down and destroy the weeds, but the vines mutually sustain each other, and prevent the crop lodging or falling upon the ground. It is exceedingly liable to be injured by both of these causes.

It is advisable to sow peas as early as the season will permit, unless there is an apprehension of the presence of the pea bug. In this event, it is asserted, the insect may be avoided by defer-

* I suppose, without, however, having specimens to examine, that these plants are different species of the same genus. Still, I retain the idea advanced in the text, as worthy of consideration, and because it is introductory to the suggestion, as to the value of the native plant.

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ring the sowing until about the 10th of June. If the preceding crop has been affected by the bug, the seed should be steeped for a few minutes in hot water. This will destroy their eggs and larvæ, and, if carefully managed, will not impair the vitality of the grain. Peas are occasionally affected by mildew in hot and damp weather, when the earth is dry and the atmosphere surcharged with moisture. Nothing, I believe, can avert this infliction but the intervention of Providence, unless the land can be slightly irrigated by artificial means.

There is much difficulty in covering peas sufficiently by the harrow. A heavy shower will often expose half the seed sown. If dragged excessively, the seed, instead of being buried deeper, will be brought to the surface. Peas will vegetate lower in the earth than any seed except beans. Peas should be sowed on the furrow previous to any dragging. Upon a light and friable soil, it is the more secure and effectual method, to cover the seed five or six inches by a light plow. The drill husbandry seems particularly adapted to the successful planting of peas. It is extensively practiced in Europe, and obviates in a great degree the difficulties adverted to in the culture.

Broom Corn.—The books afford little satisfactory information relative to the culture of this valuable, and, in some sections of the State, predominant crop, and I possess no personal knowledge or experience on the subject. Under these circumstances, I avail myself, with much pleasure, of the following lucid and detailed paper, prepared by Mr. Elijah Cheeseboro, of Guilderland, Albany County, for which I am indebted to the courtesy and attention of Mr. Johnson, the efficient and zealous Secretary of the State Society:

"I commence plowing about the 10th of May, or as soon as the land is fit to work without injuring it. The plow used is Clute's No. 2½, built higher than usual under the beam, for the purpose of deep plowing, and turning under the old stalks of the preceding year. After plowing a section of some three acres or upwards, varying in size with the force employed, I immediately pass over it with an inverted harrow, for the purpose of leveling.

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If there are no lumps, I follow the harrow with a roller, of medium weight, which settles the remaining inequalities, and leaves a uniform surface. If lumpy, harrow and roll till lumps disappear. I then mark it one way, with a marker, rows three feet two inches apart. I follow these marks with Gray's broom corn drill, which deposits from two to three quarts of seed to the acre, covering and packing the dirt upon the seed, by means of a small roller, at the same time. It is then left till the blade reaches from two to three inches above the surface, when I pass between the rows with a scraping cultivator—a machine upon the cultivator principle, with two semi-cylindrical knives, so arranged as to remove all lumps, weeds and grass, from near the corn, and deposit them at an equal distance from each row. This greatly facilitates the scraping with the hoe, which immediately follows the machine. As soon as possible after scraping, I pass through with the cultivator, using the half teeth, with the mould board inward. Immediately after cultivating the first time, I cultivate again, my object being to keep the soil loose and mellow. No hoeing is necessary. Soon after cultivating the second time, the hilling and final operation commences, which is very speedily and effectually performed, by means of the Ohio shovel plow, which I consider a decided improvement upon the double mould board, in any kind of soil—it requires but little more than half the force to propel it, and places the dirt so closely to the corn that there is no occasion for using the hoe. The growth of the corn is now exceedingly rapid, advancing at times, when the weather is warm and moist, from six to eight inches in twenty-four hours, till early in August, when the brush appears. This is fully developed by the latter part of August, or the early part of September, though the seed may not be entirely filled. If I wish to harvest my brush green, I pay no attention to the seed, but commence cutting as soon as the whisk is advanced beyond the last leaf. If I wish to preserve the seed, I let it remain till it turns slightly red. Previous to cutting I pass through the rows, and bend or break the whisk down to a convenient height for cutting, taking care to bend it in the direction in which it will be least exposed to the sun. This prevents it from turning red as rapidly as it would did it remain standing. The brush is cut from

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five to seven inches from the hurl, and placed in heaps, at convenient distances, through the field. These are immediately gathered into the wagon, and taken to the barn, where the brush is sorted over and put into handfuls, the brush of each handful being of equal length. The seed is taken off by a double cylinder scraper, driven by a single horse power. The brush is then spread upon poles, from one to two inches thick, for drying, which, if the weather is dry and windy, is sufficiently accomplished for manufacturing in from eight to ten days. By gathering the husk while it is green, and not permitting the seed to ripen, I am enabled to crop the same piece of land for successive years, with no other manure than the stalks of the preceding season—as it is the ripening of the seed, and not the growth of the stalk, which exhausts the soil. This season my crop has averaged some 500 pounds per acre, though there are portions of it which would produce 800 pounds per acre."

Beans.—Beans, as a field crop, have never received the consideration, in this country, due to their value for cultivation, or importance as an article of human sustenance. They are rarely cultivated as a separate crop, but are usually grown in connection with corn. Many intelligent farmers, however, object to this practice, alleging that the beans detract from the product of corn, and that the value of the former crop does not compensate for the deterioration of the latter.

When beans are planted by hand, the operation is proverbially slow and laborious. This objection, which has been a decided and serious one, to the extensive cultivation of this crop, is now obviated, by the introduction of the planter. A man and horse, with this implement, may plant several acres in a single day, depositing and covering the seed with great accuracy, either in hills or drills. The planter should be so gauged as to cover the seed at least two inches in depth.

Warm and light soils are the most favorable to the culture of beans. They do not flourish on very moist or tenacious earths. If the soil is too rich, they incline to a luxuriant, but barren growth of vines. With the aid of plaster, light sands, particu-

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larly on an inverted turf, often produce a good harvest of the small white bean. The rows should be placed at a distance of about two feet, so that the cultivator may conveniently operate between them. The hills stand from fifteen to eighteen inches apart. When planted in drills, the seed should be dropped about two inches asunder. The common corn planter may be graduated to plant beans in either method, and at any distance. Five plants are sufficient for a hill, although it is advisable to deposit more seed, in order to provide for the ravages of worms and bugs.

The worm and grub are formidable enemies to the bean, and it is difficult to guard against their attacks. Fall plowing, and an application of salt or lime to the soil before planting, and a top dressing to the young plant of charcoal dust, ashes and plaster, are all recommended as partial remedies. Late planting I regard as the best security against them. In hoeing, when their ravages appear, they should be carefully sought out and destroyed. Land of medium fertility, affords the best and safest soil for the bean culture. They require industrious and careful tillage, and should be kept free from weeds, with the earth loose and fresh about them. Beans are sometimes sown broadcast, and plowed in, with favorable results. About two bushels of seed to the acre are required in this culture, which is attended, after planting, with no additional labor or expense, except the harvesting and storing the crop.

Great caution should be observed, in cultivating the bean, not to disturb the earth about the plants when they are moist from dew or rain, as the light earth settling upon the leaves affects very njuriously the growth of the plant. The harvesting of this crop is a very difficult process. If allowed to stand until too ripe, the pod is apt to open, in sudden changes from wet to dry weather, and to expel and waste the beans. When pulled prematurely while the leaves or stalk are green, they are very liable to heat, and injure in curing or after they are stored. The proper period to harvest them is, when every part of the plant is fully matured. They should be pulled in dry weather, and thrown into small bunches, and left to completely dry and cure. If it is suspected, that they are too green to safely remain in this situa-

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tion, the bunches should be carefully turned. When the quantity raised is light, the vines may be arranged loosely in a small circumference around a pole, and will thus be preserved from heating in the straw. The best method to secure large quantities from injury, before thrashing, is to throw them loosely upon a scaffolding made of poles, lying wide apart as possible, and placed over the thrashing floor, or some other open space under cover. This arrangement will secure what is indispensable to their safety, a free circulation of air.

The small white bean has generally the preference in market among buyers, but I think other varieties may be cultivated with more advantage to the farmer. Among these may be enumerated the red eyed china, and a large, rich, early white bean, which may be found at the seed stores.

On the return of the American army from Mexico, they introduced a bean, which possesses many excellent qualities for either field or garden culture. It obtained the very appropriate name of the Buena Vista bean. This bean was introduced into the district where I reside, by the distinguished General Churchill, of the army, and has been extensively cultivated and is highly approved. Its color, which is a yellow brown, may be temporarily, until its properties are appreciated, an objection to it in the market. The Buena Vista bean is small, but highly prolific and nutritious, with a very pleasant flavor, and an absence of the laxative effects often so pernicious in the common bean. The State Society, a year or two ago, widely disseminated the seed of this bean, although necessarily in minute quantities, and it will doubtless prove a valuable acquisition to our agriculture.

Recent intercourse with Mexico has made us acquainted with another member of the leguminous family, which has within a few years been introduced into some of the northern countries of Europe. The Frijoles occupy the same position in Mexican diet that rice holds among the Orientals, and which potatoes formerly held with the Irish population. One variety of the plant, described as large and of a brown color, which grows in the higher and colder regions of Mexico, would undoubtedly be found

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adapted for our climate. The Frijoles yield abundantly, and are cultivated by the same tillage as other beans. They always occupy a place upon the table of both the rich and poor of Mexico, and are cooked in almost every conceivable style and modification. The Frijoles, it is anticipated in Europe, will afford an excellent substitute for the potato, and are described as a "healthy, substantial, and most palatable diet."

The haulm of the bean, when well cured, makes a fodder which sheep eat greedily. It is generally advisable to spread the beans, to completely dry them after being thrashed, before they are finally stored in bins or casks. Neither beans nor peas receive a proper or sufficient tillage in this country. Both crops are generally appropriated to inferior land and are inadequately tilled. Under a diferent system, each might be made eminently profitable. In England, peas and beans are sown together broad cast in the proportion of one part of the former to three of the latter. The product is readily separated, after being thrashed by riddling, which retaining the beans, allows the peas to pass out. I fully concur with Professor Norton in the suggestion that this mixed crop, if cut green, would afford a valuable and most nutritious fodder.

Buckwheat.—This crop has been regarded, until within a few years, with little complacency, and it has been almost a reproach to the agricultural character of a farmer to cultivate it extensively. At the period referred to it was only cultivated on the poorest soil. The improved facilities for transportation, and the enhanced demand for buckwheat flour as an article of human food, have combined to largely increase the price of this grain, and it is now considered, in many sections of the country, one of the most profitable crops cultivated.

Buckwheat, while growing, is peculiarly exposed to many adverse influences. Heat, drought, winds and frosts, often blight it. There is no assurance of a successful product until the berry is formed, and after this is secured, it is frequently injured or wasted in the harvesting. The fact that it need not be sowed,

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until all other spring crops have been "got in" is a great inducement to the culture of buckwheat, and effects a vast convenience in its tillage.

I am satisfied, however, that the sowing of the crop need not be limited to this period. It may be sown early as well as late, and at any time from the tenth of May or after it is not exposed to injury by late frosts, to the 10th of July. The impression has generally prevailed, that it will be blasted by the hot and dry weather of July and August, if it is sown in the spring; but I think that the heat and drouth which usually occur in September equally expose the late crop to this danger, and in addition to this, it is liable to be cut off by the occurrence of early autumnal frosts. I have formed the opinion from the observations of several years, that each season has its peculiar convenience and disadvantage. Excellent crops are produced by an admixture f buckwheat and oats, sowed in early spring. This mixed crop affords a good feed for horses, and, boiled or ground, is valuable for fattening hogs. Buckwheat is often fed alone to horses, but some prejudice exists against it, from the belief that it excites a partial narcotic influence upon the animal. Buckwheat is highly useful for hogs, and may be boiled with swill for early feeding, before other grain can be procured. Some authors assert that one bushel of buckwheat is equal to two of oats for swine fattening. Sheep freely eat the straw.

Buckwheat holds a high rank among the cleansing and ameliorating crops. Its exhausting effect upon the soil is trifling, as it derives much of its nourishment, while growing, from the atmosphere, through the agency of its numerous and broad leaves. While the most forward portions of the plant are maturing their seeds, other parts are still growing, and distilling from the air its fertilizing elements. Its roots are thus constantly growing and expanding, and exerting on the soil a loosening and opening influence. The umbrageous and thick foliage of buckwheat spreads over the surface, stifling and destroying all weeds and bushes. Hence, it is invaluable on every kind of land, but more particularly on heavy and moist earths, as a subduing and purifying crop.

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Buckwheat seems to impart some unfavorable influence to the soil, or to extract from it some principle, that renders it uncongenial to the corn crop. I have never seen a successful crop of corn cultivated on buckwheat stubble.

A large quantity of buckwheat, is generally shelled upon the ground in harvesting the crop. If wheat or other grain is designed to follow buckwheat, which would be injured by an admixture with it, it is well to extirpate the buckwheat before the other crop is sowed. This may be done by turning hogs upon the stubble, which will consume a large portion of the scattered grain. Afterwards pass a light drag over the ground, and the buckwheat which the swine have not consumed will sprout and be killed by the winter's frosts; or the land may be dragged in the spring, and the crop of buckwheat, which will start, may be plowed under. When it is intended to use green crops for fertilizing, this course will save one plowing and an extra seeding. The quantity of seed necessary for a buckwheat crop ranges from two pecks to a bushel, and must be proportioned in reference to the richness of the soil. Light and feeble land requires a bushel, while on a medium soil three pecks are sufficient, and on rich land not more than half a bushel should be used.

Although the succession of blossoms will continue to produce a series of grain, the first yield is the heaviest and most valuable. This crop should, if possible, be cut by the cradle, as it cannot be favorably cured when mowed with a scythe. It should, soon after cutting, be gathered into small bunches, with the heads of the grain either tied or twisted together, and each bunch should stand alone, the butts of the straw spread and resting on the ground. Buckwheat requires to remain a long time in the field after being cut, and should not be removed until it has become thoroughly cured. Rains do not readily injure this grain when arranged in the manner recommended, while standing in the field.

Buckwheat should, if possible, be thrashed as it is drawn in, but if this is impracticable, let the grain remain in the straw until the occurrence of dry and freezing weather. This will dissipate

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all the moisture which may have collected in the straw, and the grain, then, will be easily thrashed. Much grain may be saved from shelling on the ground and being lost, if the crop is hauled on a sled with a close bottom, or if a wagon is used, let the bottom boards be tight. Buckwheat is often a very advantageous medium for stocking land, especially when it is sowed in the spring. This crop may be used for the soiling of horses and cattle. The former are peculiarly fond of the haulm when cut green, and it is considered a nutritious feed for them. When cultivated for this purpose, it is particularly favorable for stocking down land.

When pastures have become infested with rank weeds, or other noxious vegetation, it is very judicious husbandry to break them up, and occupy the land with a buckwheat crop. The worthless herbage will thus be subdued, and the land may be re-seeded in a cleansed and renovated condition.

Buckwheat may be cultivated upon almost any soil, but is grown with the best success on light and warm lands, possessing moderate fertility. Gypsum has great efficacy in its influence upon this crop. I have already referred, to the great value of buckwheat as a green crop for plowing under. No process from the great ease and economy with which it may be conducted is better adapted for fertilizing the soil. The copious foliage, broad leaves, and great succulence and tenderness of the plant, which produce its rapid decomposition, render a buckwheat crop peculiarly favorable for this system. Three, and sometimes four crops may be plowed under during a single season. The renovating effect of this husbandry, can scarcely be estimated too highly. Where a deficiency of manure exists, or where the land is difficult of access, or impracticable for hoed crops, this system is of the utmost utility.

It is said, that light soils may be admirably prepared for turnips by the following practice:—Let a buckwheat crop be sowed as early as possible in the spring, when in flower plow it under, and sow a second crop of buckwheat on the furrow; in July turn this under, and upon the furrow sow the turnip seed. Plaster

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will greatly aid this culture. Land may be prepared for wheat, by plowing in one or more crops of buckwheat in this method.

Indian buckwheat.—This grain is a variety of the common buckwheat. The kernel is harsh, coarse, and nearly ovate. It is not adapted for human food. This crop may be cultivated on all soils. It grows with great rapidity and under favorable circumstances, is highly prolific. On new and rich land it not unfrequently produces one hundred bushels to the acre. About half a bushel of seed is necessary to the acre, and it may be sowed at any time from early spring to the first of August. This grain is valuable for hog feeding, and possesses not only excellent qualities for these purposes, but ripens at a season when there is often a great deficiency of hog feed. Sown in May, the grain may be harvested in August. Great care must be taken in gathering this crop, on account of its peculiar liability to shell. I have known nearly a whole crop scattered upon the ground and lost from a want of care in this respect. The grain is prepared for harvesting as soon as the earliest berries begin to turn, but it should only be cut when the dew is on, or in a light shower. The crop should be hauled when damp. If the Indian wheat is ground without bolting, the flour is nearly the color of sulphur. In some sections of New England, it has become the substitute in hog feeding for all other grain, and is used almost exclusively for that purpose. Occasionally it produces on swine an effect similar to that noticed sometimes, after they have eaten copiously of buckwheat in the berry, and is, I think, analogous to epileptic affections. When this appears, the feed should be suspended for a short time, and sulphur or salts administered to the animal affected.

It is sometimes objected to the culture of this grain, that it leaves the land foul, and infests it like a weed. It undoubtedly sustains itself for a few seasons in the soil, but I can discover no insuperable ground of objection in the fact. It affords in pastures an excellent herbage for grazing, and if it occurs in meadows, cattle are fond of it in the hay. When this grain is fed to swine in the straw a singular fact may be observed:—A white

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hog will often appear almost maddened by the irritation the straw produces on his skin, while a black or dark colored one will exhibit no sensibity to its effects.

Hops.—The culture of hops is becoming a highly important, interest in some sections of this State. Under the conjunction of favorable circumstances in the harvest, and price of the article, it may be ranked among the most attractive and profitable of our agricultural occupations. Unhappily, however, it is exposed to numerous contingencies and impediments.

The hop is liable to the attacks of the grub at the root, of the fly upon the vines, and to be blasted by the mildew or blight. The product of the hop yard, is extremely uncertain and fluctuating. In two consecutive seasons, the yield often varies from one-half to three-quarters in amount. The price of the hop is also subject to great fluctuations, being sometimes depressed to six cents the pound, and again, under the stimulating effects of an active foreign demand, rising to forty, and even fifty cents. The first disbursements, incident to the preparation of the land, the culture, harvesting and drying of the hop, are very heavy. These incidental expenditures, including the necessary fixtures, are estimated at about $150 per acre. A hop house, embracing kilns and the other necessary appurtenances for drying, calculated for a hop yard of ten acres, will cost from $300 to $800. The annual cost of labor in the cultivation of the hop is computed to range from $75 to $150 per acre. The poles alone, required for the crop, are no inconsiderable item of expense. Large numbers of cedar poles, to be used in hop yards, have been recently transported from the shores of Lake Champlain to Oneida county, at a heavy disbursement.

These are the chief embarrassments, to the pursuit of hop growing At the average price of the article, the business may still be placed among the most important and remunerative occupations of the farmer. The hop culture possesses these advantages: When the yard has been established, the subsequent management of the crop is pleasant, and not laborious; it may be conducted

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with little interference with the other operations of the farm; it is permanent, and the proceeds of the business are received in a consolidated form.

The moist and cool climate of England is more congenial to the hop than our hot and dry seasons. With us it requires a moist and rich soil. A sandy loam, possessing these qualities, is esteemed the most favorable. A general rule is recognized, that any land or climate adapted for corn will be found congenial to hops.

Deep and thorough plowing is considered indispensable to the successful culture of this crop. The roots of the hop vine penetrate very deeply, and are said to expand, laterally, a distance of twenty feet. The ground should be plowed in the fall preceding the planting of the hop roots, to a depth of twelve or fourteen inches. In the ensuing spring, draw on to the land fifteen or twenty loads of stable manure, and more if it is necessary to place the soil in a good condition. Spread the manure on the surface, and thoroughly drag and cross plow the ground; furrow it out in rows from six to eight feet asunder; set out the hop roots along these furrows, at a distance of about eight feet. Be careful to mingle a small proportion of male plants among them.

Hop roots may be raised either from the seed or cuttings. The former mode is generally preferred among the hop cultivators of England, under the impression that the plants are more hardy and productive. One year, however, is saved by the use of cuttings. Hops are gathered the second year from cuttings, but plants raised from the seed do not produce until the third season.

The cuttings are procured in the spring, from old hop yards, and are supplied by the head of the root, and by the runners which grow near the surface. The former are esteemed the best for planting, but cannot always be obtained in sufficient quantities. The cuttings are separated into pieces, containing two or three eyes each. Let four of these be planted to a hill, and at the usual depth of potatoes.

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Hop yards are often seriously injured by the plants being crowded, owing to the position of the hills. They should be so arranged as to promote the free circulation of the air, which is highly essential to the growth and health of the crop. It is advisable to plant, between the hills of hops, corn or potatoes, the first season. By this system, the use of the land is not entirely lost. The only care the plant requires the first year is thorough hoeing, and this can readily be performed by the proper tillage of the other crop.

In order to protect the young plant from injury by severe frost, it is advisable to cover each hill, in the fall, with a shovel full of compost manure. The second spring the hops should be poled, as early as the frost will permit. Any light and durable timber is suitable for poles, but cedar is generally preferred, as peculiarly combining lightness and durability. Opinion differs, in respect to the appropriate length of the poles—some cultivators limiting it to sixteen feet, while others require them to be twenty-five feet. They should be as small in circumference at the bottom, as is compatible with sufficient strength.

Two poles, firmly secured in the ground, are placed in each hill, about a foot apart, with their tops inclining from each other. In England, three poles are appropriated to a hill, in order to prevent the vines growing too thick, and to promote the access of air and heat to the whole vine. Two or three of the most vigorous plants should be left in each hill, and the remainder be destroyed.

Each succeeding spring, after the first, the earth and manure should be carefully removed from the roots of the vine, and all the shoots not required for cultivation be pinched off or grubbed out. This removal of the material around the root, in addition to its other benefits, it is supposed, impedes the working of the grubs and worms.

In July, after the season of the grubs has passed, the plant should be hilled about two inches in height. Eight or ten loads per acre of manure should be annually applied to the land. The plants should be hoed at least three times in the season, and more

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frequently if the process is required to completely subdue the weeds. The last hoeing should be performed when the vine is in full blossom. The land should be well plowed at the first hoeing, and the cultivator be industriously plied between the rows throughout the season.

Great care should be used in properly securing the vines to the poles, when they first begin to spread in the spring, and this vigilance must be continued during the entire season, as the tendrils are frequently torn from the poles by violent winds. Woolen yarn or strips of woolen cloth, are the best materials to secure them to the poles. The hop yard should be placed on a level piece of land, or with a slight inclination only, from the fact that the extreme pulverization and depth of soil necessary to the hop culture, renders the earth peculiarly liable to be disturbed or washed away by heavy rains. The position of the yard should also be sheltered, as the height of the tender pole, and burthen of vines with which it is laden, renders it very liable to be prostrated by high winds. An accident of this kind results in the loss, or very serious injury of the hops. Sometimes the pole may be sharpened at the end, and replaced, when the inconvenience is partially remedied. Although a protected situation is desirable for the hop yard, it should be so located as to secure a brisk circulation of air among the plants. A northern exposure is preferred.

In some of the most important hop districts in England, the vines are trained on poles placed horizontally, about five feet high and three feet apart, which are supported at proper distances by perpendicular poles. These strengthen and keep steady the horizontal poles. A plant is placed at each stake. The rows necessarily run but one way. This is called the espalier form, and is very appropriate in situations exposed to wind, and also effects a considerable saving of poles. The hills are sometimes arranged in quincunx form instead of squares. The number of hills upon an acre, may be increased by this method.

The hop is a perennial plant, and many yards in England contain individual plants, which have flourished beyond the memory

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of the living. Still, it is recommended by intelligent cultivators to renew the plants after a lapse of fifteen or twenty years, and some prefer to replace them at an earlier period.

The hop reaches maturity about the 1st of September, when the picking should be commenced, and followed with great activity. It is advisable to harvest a portion before they are fully ripe, rather than permit them to hang so long, as to impair their quality or be exposed to frosts. Hence the picking should commence a little in advance of the ripeness of the whole field. The period of harvesting is short, with a difficulty often of procuring the requisite laborers. Hop picking is almost a festival, distinguished for its gay and jocund hilarity, not unlike the joyous vintage of France. This operation is chiefly performed by old men, women and children.

The hops should be picked with great care, and be clean from leaves and stems, as much of the excellence of their quality depends on their freeness from these ingredients. The hops are deposited as they are picked in a large box, constructed of thin light boards, with partitions for the convenience of separating the work of each hand employed. This box may be made of any convenient size, and should be arranged with handles to facilitate its transportation. Its contents should be removed once at least each day.

One man attends each box, and it is his duty to cut the vines, supply the pickers and remove the poles when they are emptied. The vines should be cut about two feet from the ground, to avoid injury to the roots from bleeding. It is highly important that the hops should be dried as soon after picking as possible. For this purpose they should be immediately transported to the dry house.

It is difficult to explain intelligibly upon paper the construction of the kilns, and the processes of drying and bagging the hops. Any judicious person engaging in this culture, will naturally seek for the services of experienced hands, familiar with these processes. The following extract from a paper in the Patent

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Office Report of 1853, by Mr. Rouse, of Oneida county, presents a very intelligent view of this subject:

"The operation of drying is one of great nicety, for the strength and flavor of the hop are quite volatile. The hop-house, or kiln, should be of a size proportioned to the quantity of hops to be cured, so that they may not accumulate on hand. To avoid this, it will generally be necessary to keep the kiln heated both day and night. It is commonly built of an oblong form, and of two stories, the lower part being occupied by the kiln and press-room, and the upper part by the drying-floor over the kiln, and by a room of about an equal size for storing the dried hops, which will, of course, be over the press-room. Kilns are sometimes built of bricks or stones, of a circular form, with a round hole in the apex of the roof, surmounted by a moveable cowl or swinging ventilator, to enable the vapor of the drying hops to escape easily. If the building is of wood, the sides of the kiln should be lined with brick work, or thoroughly lathed and plastered. It is found the most convenient and economical to heat it with stoves, from two to four of which will be necessary, according to the size of the kiln. The drying floor should be at ten feet from the ground, that there may be no danger of scorching the hops when drying. This floor is formed of slats about one and a half inches in width, and the same distance from each other. These are covered with a strong coarse cloth, of open texture, so as to admit of a free transmission of the heated air from the kiln below. The drying room should be of a comfortable height for a person to work in it; and the sides should be lathed and plastered, that there may be no irregularity of the heat in different portions of the room during high winds. A good ventilation should be provided in the roof as described above. Openings should be left in the walls near the bottom of the kiln, to admit fresh air from without, the draft to be regulated by flues or sliding doors. The cloth for the drying floor should be well stretched over the slats, and firmly nailed. On this floor the hops are spread to the depth of six or eight inches. The proper thickness will depend somewhat on the condition of the hops; if they are very full of moisture they should be laid on quite thin, but if

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gathered when fully ripe, and in fine weather, a depth of ten inches will be allowed.

The hops being spread as evenly as possible, the fires are immediately kindled in the kiln, and the temperature regulated to one uniform degree of heat. This, however, may be quite high at first, as there will be at that time but little danger of scorching the hops if the floor is sufficiently high. If the hops are rusty, or discolored from any other cause, it is usual to burn a little sulphur under them, which will bring them to a uniform appearance. This is done as soon as the hops are well warmed through, and feel somewhat moist.

During the drying process the fires should be kept up, and there should be a free supply of fresh air from below, sufficient to keep up a regular succession of heated air from the kiln, passing through the hops, and out at the ventilator, carrying the vapor expelled from the drying hops. This will be found far preferable to a still, clear heat. As soon as the upper part of the hops appear to have felt the fire, the lower part may be considered as nearly dry, and will rattle a little. The heap may then be turned. Before this is done the heat should be suffered to abate a little, and increased again after the turning is finished. I am aware that many do not turn their hops while drying, nor suffer them to be disturbed at all, until they are ready to be removed from the floor. When sufficiently dried they should be allowed to cool off a little if time can be afforded, otherwise there will be great danger that they will break in moving, or a portion of them shell off and waste. Ten or twelve hours are required to dry a kiln of hops. Two kilns may be dried in twenty-four hours by keeping the heat up through the night. A twenty foot kiln will thus dry 400 bushels per day, as they come from the vines, making about 750 lbs. of hops when dry.

The hops being dried, the next process is to bale them. This should not be done immediately after they are taken from the kiln, but they should be allowed to lie a few days in the store room, till they become a little softened, otherwise their extreme brittleness will cause them to be much broken in baling, and the sample be

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thereby greatly injured. The bales should be of symmetrical and convenient form, and should contain about two hundred pounds. They are formed in a box or bin prepared for the purpose, in the press room, of such shape as will give the desired size and form. Across the bottom and sides of this box the baling-cloth is first laid, and the hops are then let down into it from above, and trodden down as they are dropped in until it is filled. Another cloth is then carried over the top, a follower applied, and the screws of the press turned down upon it until the whole is brought into a compact mass. The box is then taken apart, the cloth neatly secured around the bale, the screws are run up, the bale taken out and the ends cased, when it may be considered finished, and the same process is repeated in forming another. This method is, I believe, almost universally preferred in this country, but I understand that in England the press is seldom if ever used.

Mr. Stevens enumerates the following uses to which the hop vines are appropriated in various countries, which may suggest to us similar applications of them. In England they are used for tanning light skins in the place of oak bark. In Sweden the stalks of hops are successfully converted into strong cloth for sacking, and coarse bags for hops, for which purpose thestalks are gathered in autumn, soaked in water during the winter, and in the succeeding spring, after being dried on stoves, are dressed like flax. A coarse kind of paper has been made from the stalks. They are also used for binders for sheaves of corn and bean haulms. The prunings are cut into pieces and stocked for winter provender for cattle and horses, which are fond of them, their bitterness constituting an excellent stomachic. They require careful harvesting to preserve them for this object. The tender shoots of the hop may be used in the spring as a pleasant bitter salad, and in Flanders the young shoots are appropriated to culinary purposes, in the same way as asparagus. An extract is also procured from the leaves and off shoots, after being dried, that forms a dye for woolens of a fine cinnamon brown, and in France they are made to afford a permanent red brown.

Flax.—The culture of flax nearly abandoned for a long period in most sections of this State, has again recently attracted atten-

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tion, and been revived. In the counties of Washington and Rensselaer, however, flax has been, without intermission, cultivated extensively for more than thirty years. The crop is estimated to occupy at present, in these counties, about five thousand acres of choice land. The fact that the highly intelligent and skillful farmers of this district have pursued for so long a period, and to such an extent, this culture, affords the strongest evidence of its importance and value. It is asserted that the soil occupied by flax during this long term, in the usual routine of husbandry, exhibits no appearance of decreased fertility. This result must be regarded as disturbing the opinion prevalent, that flax is an eminently exhausting crop.

This crop is adapted to numerous varieties of soil. Thin and feeble earths require the lightest application of seed, and contrary to the ordinary rule of seeding, strong lands need the most seed. Thick sowing produces fine flax.

The author of "Essays on Flax Husbandry" remarks, "that the best soils in this country for flax are the flat bottoms, which are covered by the spring and fall floods, the alluvials, and reclaimed marshes and swamps, of a black unctuous soil, but not too peaty, and which do not retain water on or near the surface." He next enumerates strong black loams, on clay or hard pan. Yellow loams, with a holding soil may be rendered suitable for flax with proper cultivation, and since the discovery that gypsum is an excellent manure for it, a crop may be obtained with much more certainty than formerly. Perhaps the characteristic of the best garden mold may be applied to a flax soil, viz., retaining sufficient moisture, and all that falls, without ever being saturated, but on any soil, the surface should be completely pulverized, and never worked when wet.

The quantity of seeds necessary for an acre appears quite undetermined. The practice seems to range from one to three bushels. The medium of two bushels I infer from the best authorities to be now generally adopted. The land, preparatory for a flax crop, should have obtained a fine tilth. Corn, potatoes, or other roots, are the best introductory crop. The land should have been abundantly supplied with manure in the tillage of

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these crops, but none should be applied with the flax. When the earth is in a proper condition sow the seed broadcast early in the spring, and drag thoroughly.

This crop requires the most careful weeding, which is indispensable to its successful culture, as the young plants are easily choked and destroyed by luxuriant weeds. This operation which must be done by hand should be performed early in the season, when the plant is three or four inches in height. Land may be stocked with flax to clover and timothy, without prejudice to the crop, although it is injured by the rank and rapid growth of weeds.

Flax is a quick grower and stands upon the ground only a brief term. The time of harvesting is ascertained by the appearance of the seed and color of the straw. Flax should be pulled when the leaves begin to fall, the straw to turn yellow and the seeds in the capsule or boll present a slight brown tinge. The seed will perfect its ripening after the flax is harvested. If the flax becomes lodged, it should be pulled at any stage of its growth, as it rapidly decays after this happens.

Flax is pulled up by the roots. This work is performed by hand, and is a slow and expensive operation. If the culture of this crop extends, it is probable that mechanical ingenuity will devise some implement by which this labor will be executed. A machine of this kind is confidently anticipated, and it will immensely increase the culture and facilitate the harvesting of the crop.*

The succeeding processes in the culture and management of flax, are briefly and intelligently described in the work already referred to. The able and elaborate essay of Mr. Wilson, embraced in the volume of Transactions for 1853, affords the most ample instruction and advice on these interesting topics. The limits of this work, and the object contemplated, will not allow me to present a minute detail.

* It is said that a machine is in use in the Western States, which performs this office.

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The following extract from the work already quoted, which is fully confirmed by the testimony of practical cultivators, furnishes all the information necessary. The author says:

"As soon as the flax is dry enough to be put under cover, it should be rippled, as it is termed. A comb, resembling the head of a rake, but with teeth larger and nearer together, made of hickory or oak, is fastened upon a block, and the flax, taken in parcels no larger than the hands can firmly grasp, is drawn through, and the bolls ripped off, attention to sorting at the same time should be continued. The bolls are to be riddled and winnowed immediately, spread thin on a clean floor, or on sheets, in the sun, and when sufficiently dry, and beginning to open, thrashed. By this method, the foul seeds are completely separated, with little trouble, and good clean seed is ready for an early market, often the best, without the use of expensive machinery to make it so.

The preparation of flax by steeping is very general in the great flax growing countries in Europe, but it is not quite finished in the water. It remains spread some days on the grass, which is necessary to render it soft, and give that silvery appearance so desirable. The destructive process of dew-rotting is most commonly practiced in this country, and, when water is resorted to, it is at an improper season, and the process imperfect, which is the cause of its being so harsh and brittle. Perhaps no part of the system requires such an allowance for difference of climate. In the humid atmosphere of Ireland it is not very material when it is spread; but in this climate, when exposed to a July or August sun, every drop, after a shower, becomes a burning-glass, and literally scorches the fibers; besides, such a highly putrid fermentation as will then take place in the water, though it separates the hurl more speedily, not only injures it, but communicates a stain, that renders the process of bleaching much more tedious and expensive. The flax should not be put into water till about the first of October, and remain from ten to fourteen days, according to the temperature of the weather, and should be taken out before the fibers will separate freely, spread on the grass, when the frost will very much assist the operation—and

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the flax exhibits a gloss and softness that it is impossible to give it otherwise." 'In dressing', says Mr. Pomeroy, 'our climate gives a decided advantage over Ireland, Flanders, or the north of Europe, where flax is dried on hurdles, over a peat fire, in ovens or kilns, requiring great care in regulating the heat, to prevent injury. All this trouble and hazard is obviated by our dry atmosphere and keen northwest winds.' Dr. Deane estimated the expense of dressing flax by hand at one-third of the product. I believe the present price, does not vary much from his estimate."

The process of dew-rotting of flax on meadows is said to be favorable to the land, and nearly equal in its fertilizing effects to a dressing of manure. It shades and preserves the earth in a moist state, and by the gummy matter which is thrown off from the flax, and imparted to the earth, fertilizes the soil.

It may be well, perhaps, to note, that in the new method of preparing flax, for the market, by passing the crop through a machine, the outer coating (the production of which is the chief cause, as many suppose, of the impoverishment of the soil,) is preserved to the cultivator, and may be added to the manure heap, or, if kept separately, restored to the soil from which the crop has been gathered, so that wheat or other grain may be taken from the same field during the next season.*

The uses to which flax is at present appropriated in this country are these; the admixture of it, with cotton and woolen fabrics; in the manufacture of cordage and felt, and various secondary and similar purposes. Linen fabrics, to the value of fifteen to twenty millions of dollars, are annually imported into this country. Our soil and climate seem particularly favorable to the culture and preparation of flax, this vast national expenditure therefore may,

* The June No. of the Journal of the State Ag. Society, published since the above was in type, contains an extract from an English correspondent, on this subject, highly important, which says: "We have lately been much interested in the endeavor to perfect a *Flax Machine*, patented by E. Davy, in Great Britain and in the United States. Its object is to separate the fiber from the woody part of the plant, without the previous steeping process, so that a machine might itinerate from farm to farm, and bring away in greatly diminished bulk the fiber, in a fit state to be furnished to the manufacturer. We understand that the prospects are very flattering. This will be a very important acquisition, and enable our flax growers to increase largely their profits."

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and should be, arrested. The refuse of flax seed and chaff may be profitably used in feeding stock, as a substitute for oats and corn.

Hemp, in its culture and general treatment has great analogy to flax, but there is such an entire absence of its cultivation in this State, that I believe it is not even recognized in the programme of premiums offered by the State Society.

Ruta Baga.—This crop was formerly cultivated to a much greater extent than it is at present. A slight prejudice has been created among farmers, in reference to the qualities of this root as a useful and nutritive feed for animals. It has also become quite uncertain as a crop, and very liable to the ravages of worms and insects. I consider the ruta baga, notwithstanding these opinions, a valuable and productive crop. It may be used most advantageously in fattening cattle, and in feeding store swine and stock. Swine sometimes refuse it, but when they do eat it freely, they may be wintered on the ruta baga with greater economy than by any other method.

This root is of great value for the spring feeding of sheep and cattle, particularly young and feeble stock. The milk of cows is liable to be unpleasantly affected by it, but this may usually be obviated by the free use of salt. When cattle are fattened upon the ruta baga, the feed should be suspended a week or ten days before killing, and carrots or cob meal substituted, in order to remove from the meat the disagreeable flavor produced by the ruta baga. In feeding to cattle and store hogs the roots may be used raw, broken in pieces by an axe, spade, or vegetable cutter. I have sometimes boiled and fed ruta baga to fattening swine, with satisfactory results. The leaves afford an excellent fodder in autumn for stall-fed cattle, and stock generally, except milch cows.

The soil most favorable to this crop is a dry sandy loam; clays and wet lands are uncongenial to it; sands are adapted for it, when rendered sufficiently rich. The culture of this root is very simple and easy. Many cultivators adopt the following method, in preparing land for the crop: they spread from fifteen to twenty-five loads of manure upon a meadow ley, from which the

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grass has been cut, or on an old pasture, early in July, and break it up, plowing deep, and carefully inverting the turf; then thoroughly drag and pulverize the earth, without disturbing the sward, and plant the seed immediately. In my own experience, I have found it desirable to plant earlier in the season. I should prefer to manure sufficiently a piece of old land, although green sward will answer, and plow and plant it about the 15th of June. The ruta baga continues to grow until the ground freezes. When planted early, I have known instances of the bulb bursting or sprouting. The most successful practice I have seen pursued, in the culture of this crop is the following, although I think it not adapted to warm and dry soils: after the earth, in a moist loam, has attained a fine tilth by plowing and dragging, parallel furrows are run about three feet apart, with a light plow; let these furrows be about half filled with rotted, or fine manure, then turn the furrow slice back, covering the manure, and plant the seed upon the ridge. I have raised, in this mode, twelve hundred bushels of ruta bagas to the acre.

The rows should run from two to three feet asunder, and the plants stand, after the final thinning, at a distance of about one foot from each other in the row. The seed may be planted rapidly by hand, or with a machine, and a considerable excess of seed over the number of plants necessary should be used. After the first weeding little further labor by hand is required, except slight aid to the hoe in thinning. The cultivator should be freely applied between the rows through the season, and the intervals between the plants be kept clean and loose by the hoe.

The crop may remain in the field until late in the autumn. When pulled, the roots sould be placed in rows, with the tops arranged on the same side. In this position the tops and tap roots may be cut off with great celerity with a sharp spade or axe; but care should be taken, in performing this work, not to injure the bulb.

The roots should be freed from the loose earth, which may be effected by striking them smartly together, and be made perfectly

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dry, externally, before they are stored. When there is not sufficient room in the cellar to contain them, the rutabaga may be placed in pits, similar to the common mode of preserving potatoes, but not, I think, with equal security. The rutabaga are more liable to heat in the hole than potatoes. When they are placed in pits, and covered, openings should be made with a bar in the top of the pit, to allow the escape of the heated air.

The roots may be deposited, for early use in winter, in holes beneath the barn or stable floor, and convenient to the stock which are to consume them. If they can be sufficiently protected, this is the best depository for all roots which are to be fed out. The rutabaga are far preferable, after mid-winter, as an esculent, to the common turnip, and remain suitable for this purpose until the succeeding summer. Being hard and solid, they are less liable to evaporation, and retain their crisp and tender qualities better than any other member of the turnip family. The growth of the rutabaga is not impaired, but I have sometimes thought improved, by being transplanted. It is safe to apply about a pound of seed to the acre, in the rutabaga culture, although a much smaller quantity, if used with care, is sufficient.

Flat Turnip.—The field culture of the turnip will never, probably, in this country, attain the importance and extent it has reached in Egland. The turnip crop is the prominent feature in their system of rotation. This root is one of the most valuable ingredients known to English husbandry, for the fattening and winter keeping of sheep. A small proportion only of the crop is gathered in that country for storing, the residue, in their mild and open winters, is chiefly eaten off the land during that season. For this purpose, ewes and lambs are first confined upon small patches of the field, by hurdle or net fences, which are moved as convenience and circumstances require. The hardier portions of the flock are allowed to range upon the field, to devour the fragments left by the first occupants. By this method, the whole contents of the crop are consumed, and the land is highly fertilized, and left in an excellent condition for subsequent tillage. The severity of our climate will not allow of this practice. The

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flat turnip is not adapted, like the rutabaga, for winter preservation. It is apt, from its soft and watery qualities, to heat and ferment, when stored in masses, and as the season advances it becomes pithy and fibrous. Hence it is expedient to feed the turnip in the fall and early part of winter. The turnip is peculiarly favorable to feeding and fattening of sheep, and is sometimes boiled for swine, and fed to cattle, but it is inferior, I think, to most other roots for these last purposes.

New land is the best adapted to the culture of this crop. Rich black muck, which has been reclaimed, is generally esteemed the most congenial to the turnip. If such soil cannot be appropriated for the object, almost any land may be prepared for it, in the following manner: Plow up, in the spring, a piece of green sward, of the required dimensions, enclose it, or a part by a temporary fence, and yard sheep, or in their absence, neat cattle, upon it, until the ordinary period of sowing in July; then carefully drag the land, and sow the turnip broadcast. This practice seldom fails of producing an excellent crop.

Every farmer who cultivates this crop, to any considerable extent, should raise his own seed. By selecting a few choice bulbs and setting them out early in the spring, he may procure, with little labor, a far better article of seed than he can usually purchase. The quantity of seed required for an acre is inconsiderable, and does not probably exceed a single pint. In the culture of this crop, we generally err in using an excess of seed. The plants should stand alone and single, and at least six inches apart. The ground should be completely dragged and pulverized. In this country the ordinary custom has been to leave the crop, after the harrow has accomplished its work, to struggle alone, without any assistance from art.

I think much benefit would result from passing through the crop with a hoe, cutting up the weeds, and thinning the plants, where necessary. Bone dust is considered in England a highly valuable application to the turnip crop. I have no doubt but charcoal dust would have a beneficial effect, applied as a top dressing to the tender plants, in protecting them from the

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ravages of insects, and promoting their rapid and vigorous growth. Turnips should be sowed in the latter half of July. Many new varieties have been recently introduced, which are esteemed much superior to the kinds usually cultivated, alike from their greater productiveness and the improved quality of the vegetable. Turnips need not be gathered until late in autumn.

Carrots.—Since the potato disease has created so much uncertainty and embarrassment in the culture of that vegetable, an increased attention has been directed to the carrot, as a field crop. That it is not still more extensively cultivated, is a subject of regret. It may be classed among the most important and remunerative crops embraced in our husbandry, for the uses of the farm. Carrots are considered by many farmers one half superior, as an article of animal food, to the potato. They are more hearty and nutritious, without producing the laxative effects which are often perceived in the latter. Boiled in swill, carrots are esteemed quite equal to potatoes, for fattening swine. They are an excellent substitute for grain, as a horse feed, and communicate to the animal a looseness of skin, and a rich, beautiful glossiness to the hair. Carrots have the greatest utility, given in winter and spring to milch cows, and are found available, at all seasons, with every kind of stock. They promote rapid fattening in stall-fed cattle, and impart to the flesh and tallow a rich color. Experience and judgment will dictate the appropriate quantity to be used for these various purposes. A root cutter is a very great convenience in the preparation of this root, and indeed of all vegetables for feeding.

There are numerous varieties of the carrot. Those generally preferred for field culture are, the white Belgian and Altringham. The carrot requires a dry, friable, rich and deep soil. The best is, perhaps, a clayey loam. It will not succeed on heavy and adhesive earths, nor in thin and feeble soils. The mold for this crop should be twelve or fourteen inches deep, and if it does not occur naturally the earth should be trench-plowed, or loosened by the subsoil plow, to that depth. The carrot grows entirely beneath the surface, and requires, therefore, a deep soil for its full development. The earth should be in a fine tilth and vigorous

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heart. Rotted or compost manures are better adapted, I think, for this crop than green stable dung. The latter promotes the growth of weeds and inclines the roots of the carrot to separate.

The rows of carrots should be about fifteen inches apart, and the plants, when thinned, should stand at a distance of three or four inches. The seed, from their peculiar formation, are apt to adhere together, and are sown with difficulty in the proper quantities. The best expedient to avoid this inconvenience, is to mix the seed with three or four times their bulk of dry sand, ashes, or plaster. Rubbing the admixture together vigorously by hand, will separate the seed and mingle them with the other substances. In this condition they may be sown, either by hand or with the planter, with much greater facility and precision. When planted by hand, a line should be stretched across the piece of land, and along this a mark should be made for the seed, with a stick or piece of board having a bevel edge on one side. This will form a slight furrow, in turning up the earth. Sprinkle the seed in this furrow with one hand, and draw back the earth with the other as you proceed. The common corn planters have a brush, which may be adjusted to it for the purpose of sowing carrots. The rows are so near each other, that it is generally more convenient, unless the piece of land is large, to draw the machine by hand.

The great impediment to the culture of carrots, is the peculiar toil and difficulty incident to their first weeding. When this work is accurately accomplished, and the plants are properly thinned, nothing remains in the tillage but the active employment of the hoe, in keeping the weeds down and the earth loosened about the plants. Carrots may remain in the ground until severe frosts commence.

The following are the most successful methods of harvesting this crop, that I have seen practiced. Let two hands be employed, one to loosen the roots with a broad tine dung fork, or English graip, an Irish spade, or similar implement, and the other to follow, who pulls the vegetable, and before dropping it cuts off the top. Or, the same workman may loosen and pull them, throw-

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ing them into heaps as he does so, when they may be topped as they are cast into the basket or wagon for transportation. Some cultivators mow the tops with a scythe, or cut them off with a hoe before they are pulled. This process, I think, is slovenly, being liable to wound the root, or to leave parts of the top attached to it; either accident exposes it to decay. Plaster, ashes, bone, or charcoal dust, are all useful to this plant as a top dressing. Carrots should be sowed in the early part of May, at the rate of about one pound of seed to the acre, when sowed with a good machine.

Parsnips.—This root is well calculated in many respects for field cultivation, and requires the same treatment as the carrot. The early stages of its culture, is even more difficult than the carrot, and this circumstance will doubtless impede its adoption as a field crop. The vitality of the seed is quite uncertain, and they germinate so slowly, that weeds will generally get the ascendancy over the peculiarly delicate plant. This occasions great labor and difficulty at the first weeding.

After this period the parsnip is a hardy and vigorous grower. No vegetable exceeds it as a food for swine. They eat it with voracity, whether boiled or raw, and it possesses highly nutritive qualities. The culture of the parsnip has this particular advantage; it requires no storing, and is improved by remaining in the ground through the winter. It may be pulled in the spring as required for use, and fed fresh and juicy to hogs and cattle. At that season it is of great value for feeding cows and ewes, which have new yeaned. Every farmer should cultivate at least a small spot of parsnips as a valuable resource for these purposes.

Beets.—Several varieties of the beet are adapted for field culture, but the mangold wurtzel and white sugar beet, are the most prominent and esteemed. The former is the largest and most productive, sometimes yielding the enormous quantity of fourteen hundred bushels to the acre. The sugar beet is more nutritious and delicate, and far superior as an article of human food. During the winter and spring, it surpasses any of the beet family for this use. It remains tender and crisp until the appearance of

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the garden products of the next season, makes it no longer desirable for the table.

This crop succeeds best on a clayey loam, or upon lands too moist to be favorable to carrots. Heavy clays are not suitable to it, neither are dry sands or gravel, but those which are moist are not unfavorable. The earth should be rich, deep, and in fine tilth. The beet grows more above the surface than the carrot, and therefore a great depth of soil, is not so indispensable for its successful culture as for the carrot. Fresh barn yard manure, in sufficient quantity—and this must depend on the natural vigor of the soil—should be spread upon the surface and plowed under. The beet, however, does not require as high manuring as a corn crop.

The land should be perfectly dragged and pulverized. The method I have suggested for the cultivation of rutabaga, by manuring in the furrow, may be advantageously applied to this crop on moist soils. The beet seed is contained in a rough and hard capsule. To facilitate, and indeed to secure germination, they should be soaked in rain water from twenty-four to forty-eight hours previous to planting, unless the ground is unusually moist. In this case little or no soaking of the seed is necessary.

No machine, of which I have any knowledge, is perfectly reliable for planting the beet seed with accuracy. They are exceedingly liable, from their construction, to adhere together, and to clog the implement. From their large size, it is quite easy and much safer to plant them by hand. When the area which is intended to be planted is small, the rows may be accurately arranged by a line, similar to the mode advised in the culture of carrots. If this is not practicable, they may be traced by such an implement as has been described for marking the rows for planting corn. A careful hand, however, with a little practice, will place the rows with sufficient accuracy by the eye. The rows should be at a distance of about two feet. The mangold-wurtzel should stand from eight to twelve inches apart in the row, and the sugar beet a little nearer. The seed should be covered about one inch deep. Many contrivances have been de-

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vised for making the holes to receive the seed, at the proper distance and with the requisite depth. A wheel, with appropriately arranged cogs, has been often used. The more expeditious and convenient method, with which I am familiar, is the performance of the whole process of planting by hand. Make a hole with the finger of one hand, and drop into it from the other one or two capsules, and by the same motion cover the orifice. An active man will plant in a few hours a large piece in this manner, and if skillful, will perform the work with great precision. If the seed is good, one capsule to a hole will be sufficient. I think four pounds of seed will plant an acre, although the estimate is generally much larger.

Weeding should be carefully performed, as soon as the young plant can be readily distinguished. Promptness and care at this time, will save a great amount of subsequent labor and expense. The succeeding culture of this crop is easy. The cultivator may be used effectively between the rows, and should be worked several times during the season. The earth between the plants should be kept open, and free from weeds. The ground cannot profitably be tilled, after the leaves begin to spread, as they are exceedingly liable, from their great brittleness, to be broken off.

One plant only, and that the most thrifty, should be left standing in a place. Vacancies may be supplied by transplanting. Some writers denounce this plan, but as choice roots as I have ever seen, were produced from transplanted sprouts.

The vast amount and superior quality of green fodder produced by the beet, especially the mangold-wurtzel, would render their field culture worthy of consideration. An acre of this crop will yield, it is estimated, from two to four tons of green leaves, for soiling cattle or feeding store hogs, and may be profitably used in the fattening of both animals. The leaves, after they are fully grown and matured, may be plucked, I think, without impairing the growth or productiveness of the root crop. Some British writers seem to question this opinion, but I advance it without hesitation. I have regarded the subject of sufficient magnitude to demand a careful investigation, and have formed my conclu-

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sions from my personal experience, and a close observation of the nature and habits of the plant. The early leaves, which are thrown out near the surface, grow to a great size, and are very succulent and nutritious. They become gradually thick and heavy, and being very brittle, generally break off, from their own weight, near the root, fall to the ground, and there decay. In the meanwhile, other fresh and vigorous leaves have started near the crown, which seem to perform the necessary functions in the nourishment of the plant. If the early leaves are thus cast off in the natural progress of vegetation, they cannot be regarded as instruments intended to communicate sustenance to the root. They are wasted and lost in the processes of nature, but if thus used in their vigor, they may be made to subserve most important purposes.

The leaves of the beet, consumed by milch cows, increase the quantity of milk, and, unlike the turnip leaf, improve its richness and quality, without imparting to it any unpleasant taint. They are useful, when fed to fattening cattle, in the fall, after grass begins to fail, and previous to the commencement of stall feeding. Store hogs eat the leaves greedily. In boiling swill, I often cover the cauldron with beet leaves, to prevent the escape of steam, and, when the whole contents are cooked, mix the mass of leaves and vegetables together, with a shovel. Swine appear to eat the leaves with as much relish as any of the other ingredients, and I have always esteemed them of great value as a food. Beets are superior, I think, to potatoes, and not inferior to carrots, for both stall feeding and store cattle, especially milch cows. They greatly increase the secretion of milk, and improve the richness and flavor of the cream. Hogs eat them raw, and, when boiled, they are excelled by no other vegetable, in their nutritive qualities, in fattening this animal. The mangold wurtzel and sugar beet, are pulled and topped in the same manner, as the rutabaga. They may be preserved in pits or cellars, by the same method as other roots.

Tobacco.—This plant is, at present, almost unknown to the agriculture of this State, and yet, it promises to become an important feature in northern husbandry. In Connecticut it is al-

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ready cultivated to considerable extent, and with much success. The product of tobacco in that State, previous to the year, ending 1st of June, 1850, according to the census table, was 1,267,624 pounds. This fact indicates, that it is congenial to large sections of New-York. Wherever corn will flourish, the climate is considered to be favorable to the culture of tobacco.

A great obstacle to the cultivation of this crop, has been created by the prevalent opinion, that it is exceedingly exhausting to the soil, and, in a few seasons, impoverishes it. Improvidence and unskillfulness in the management of the culture, may doubtless produce this result. In Connecticut, this objection has not been found insuperable, although it is conceded there, that other crops will suffer, if a large portion of a farm is devoted to the culture of tobacco, with the necessary application of manure. Guano has been used to great advantage with this crop, and appears to be a powerful auxiliary, which will remove all the objections to its culture, founded upon this consideration.

The first process in raising tobacco is the following: — Burn, early in the spring, a small piece of land, by piling brush upon it, which effectually prevents the starting of weeds. Upon the burnt land rake in the tobacco seed, as you would turnips. The best soil for the tobacco crop is light, dry and porous earth, free from excessive moisture, and not exposed to standing water. If not dry, it should be thoroughly drained. It must be rich, either in its natural condition, or made so, by a heavy application of manure. On ordinary soil, about twenty-five cart loads would be sufficient. The manure should be plowed under, with a deep furrow.

The land should be made mellow, by careful plowing and abundant dragging. When the leaves of the plants, growing from the seed raked in, have attained about an inch in diameter, which will be in the early part of June, they are ready for transplanting. They should be placed in rows, about three feet apart, and each plant should stand alone, with a distance between them, of about two feet. They should be transplanted, when the ground is moist, and be carefully hoed and protected from the weeds.

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The cultivator may be favorably used in the tillage of this crop. A large green worm, which is very destructive in its ravages, infests the tobacco plant. This enemy must be destroyed with great care, and, for this purpose, a flock of turkeys are most valuable assistants; they will be seen in all the tobacco fields of the South. If necessary, the worm should be destroyed by hand.

When the plants have reached about three feet in height, all the tops, except those reserved for seed, should be broken off. This process is necessary to allow the upper leaves to attain the same size as the lower. The plants should be topped at the same time, in order to promote equality in the dimensions of the leaves, and the period of ripening. The suckers, which start from the foot of the plant, should be broken off.

The maturity of the plant is indicated, by small dark spots, appearing on the leaves. At this period they should be cut, and left on the ground, until a little wilted, but should be removed, before they become so dry as to break in handling, to some covered situation, and be there suspended on poles, for drying. They may be suspended by passing a sharp stick, six or eight inches in length, through two stalks, and placing the stick across a pole, about fifteen inches apart, in the first place; but, as the plants become dry, the sticks may be brought nearer together.

Here, they should remain until the leaves are sufficiently cured. This period is manifested by all greenness disappearing from the surface, when the leaves should be stripped from the stalks, and packed away for market. They should be placed in chests or casks, pressed down and kept in a dry place.

The product of tobacco ranges from 1,800 lbs. to 2,500 lbs., per acre, with an average price of $12.00, the cwt. The cost of production of that quantity is estimated at about $8.00; the price, however, fluctuates from ten to seventeen cents, per pound. Those, familiar with the business, estimate, that one acre of tobacco may be raised at about the same expense, which is usually incurred in the culture of two acres of corn.

From these data it is evident, that no agricultural pursuit yields a greater remuneration for labor and expenditures, than this crop.

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Potato.—The prevalence of the disease in this root has produced almost an entire change in the tillage of the crop. Formerly it was appropriated to heavy moist land, and was highly manured with green stable dung. The plants were surrounded by capacious hills. All this is now reversed, but such an entire derangement and confusion exist in opinion and practice in the modern culture, that it is difficult to write on the subject with intelligence or confidence.

It were idle in a treatise like this, to theorise in reference to the disease, or to attempt to trace its causes or nature; we can only regard the admonitions of experience and observation in endeavoring to avoid its visitations. We may, I think, assume the following facts as generally acquiesced in; it seems to be established, that the rot is much more liable to affect potatoes planted in wet and adhesive earth, or when the ground has been heavily manured with stable dung. Clays are unfavorable to the crop, and sand and gravelly soils best adapted for it, in reference to the disease. They should be planted in a dry situation. An experience of my own tested this question, in respect to the injurious influence of clay, to my personal convictions. I planted, a few years since, a field of ten acres, on a sandy plain, with potatoes; upon an acre of this land, clay, to the amount of about forty loads, had been applied several years before, as a fertilizer; when the potatoes were dug, the presence of the rot was distinctly exhibited among those grown on the portion of the lot where the clay had been incorporated, while the residue of the crop presented no appearance of the disease.

Potatoes cultivated on new land or green sward are least exposed to the disease, and are more productive than on old or stubble land. When manure is applied to this crop, it is better that it should be rotted or compost, but if green, it should not be used abundantly, and should be spread and plowed under. Hog dung is the safest and most valuable unfermented manure, in all respects, that can be applied to the potato. Experiments in the use of guano upon this crop have been eminently successful; it is considered to be a profitable application, even at the present price of the guano. The mode of applying it is either to spread 300 or 400 lbs. broadcast

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to the acre, and thoroughly mingled with the soil before planting, or it may be placed contiguous to the hill, and carefully covered with two or three inches of mold before the seed is deposited. When the last method is pursued, great care should be taken that the potatoe does not come in contact with the guano. Potatoes succeed well, as to the productiveness of the yield, after a heavily manured corn crop, although it is very liable to be affected by the rot.

Charcoal dust, deposited in a small shovelful in each hill, is one of the best and most effective applications to this crop. Bone dust, ashes, lime and plaster may all be profitably applied to it. Each of these special manures may be deposited with the seed in the hill at planting, or used as a top dressing to the growing plant. In either method a small handful should be used on each hill. I recently witnessed a striking evidence of the efficacy of plaster applied in the hill. An Irishman was allowed to plant to potatoes a piece of worn and drifting sand; he plowed it in his imperfect manner, and deposited in each hill, with the seed, a small handful of plaster; the crop received no further application of manure, and was unskilfully tilled, but proved one of the most productive in the region. The tubers were large and sound, and of a superior quality.

A method of cultivating the potato was formerly pursued with great success, and might now, I think, be favorably adopted, unless it should prove promotive of the disease. When the sprouts appeared above the ground, a shovel-full of dung was thrown upon each hill, and slightly covered with earth at the first hoeing, which immediately followed, to prevent the exhalation of the fertilizing properties of the dung. The tender plant was thus shielded from the cold, the earth kept moist about it, and it received the benefit of all the nutritive essence of the manure.

Potatoes should be planted early in the season, or very late. The former is considered the most judicious practice. They should be planted early in May, or in the latter half of June. The intermediate period brings the plant into the hot and dry season, at the time the tubers are setting, and exposes the crop to

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be the most affected by the influence of this weather. I think it advisable to plant a portion of the crop early, and the remainder late in the season. By this method two chances are secured of a favorable result. Late planted potatoes the last season yielded, in some districts, a medium crop, although those planted early proved, in consequence of the drought, nearly a total failure. I have known an excellent product of potatoes realized from seed planted on the 4th of July. Planting at so late a period, however, cannot be recommended. A great variance of opinion exists, in relation to the kind and condition of potatoes to be used for seed, whether they should be large or small, cut or whole. In the presence of so much conflict of views and practice, it is difficult to affirm any established or certain rule. The careful experiments elicited by the action of the State Society, which are presented in the volume of Transactions for the year 1853, seem to tend to the conclusion that the entire tubers are the best. On the other hand, intelligent and practical men assure us, that after a series of experiments, they have become convinced that the small potato is equally valuable as the largest for seed. Others state, that the tubers should be cut into parts, not leaving more than two eyes on a piece, and that not to exceed five or six eyes should be planted in a hill. I confess that in my personal observation, I have been able to perceive little difference in the product of the crop, resulting from these various methods of planting. We know that it is expedient to select for seed the best specimens of grain, and the choicest tubers of other roots, to be cultivated for seed, and by a parity of reasoning might infer, that the finest tubers of the potato should be used for seed. A large potato, planted entire, will undoubtedly preserve the plant in its first stages from the effects of hot and dry weather, and yield it great nutrition. Those, however, who prefer the small tubers, may with much plausibility assert, that the fully developed potato will be more likely to be effete or exhausted in its producing powers, and therefore more liable to the disease, and that the small and partially developed tuber will more nearly approach in its nature and qualities the new seed produced by the ball. When the large whole potato is used, there is great danger of too many plants growing in a hill. These should not exceed five or

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six, and the number may be easily controlled by cutting the tubers into pieces.

These are, briefly the different views entertained on this subject, and each cultivator will be guided on the subject by his own experience or judgment. When the potatoes are planted in drills, the pieces, containing an eye each, should be dropped about six inches apart, in furrows, which should be run in parallel rows from three to four feet asunder. Hills should be placed at a distance of about three feet each way. The seed, when planted in drills, may be covered with great rapidity, by turning back on to them the furrow slice. This method may also be economically pursued when hills are used, if the ground is in a fine tilth. It may be advisable to follow the plow with a hoe, to supply any accidental deficiency in the covering, although this work may be performed by the plowman, with a little attention. The seed should be covered with earth, from four to six inches in depth. The cultivator may be used freely in the early stages of the growth of the plant, and they should be hoed at least twice in the season.

The earth should not be disturbed after the tubers begin to form, as this induces to the starting of new roots, and thus impairs the growth of those already set. Potatoes, especially on dry land, should be hilled but slightly. The hills should be flattened on the top, and a little depressed about the plant, to secure the benefit of light showers. When planted on dry sands, the hole to receive the seed should be dug large, and at least six inches below the ordinary level of the surface, and the potato should be covered that depth. In hoeing, the earth should be thoroughly loosened about the plant, the hills being elevated slightly, and made flat on the top. Plaster, under all circumstances, may be profitably applied, at each hoeing, to this crop.

The potato should be dug before the ground begins to freeze, or the land becomes saturated with water. The tubers should be exposed to the sun no longer than is requisite to free them from the loose earth that adhered in digging. If the existence of the disease is suspected, it is advisable to gather them in heaps and to allow them to remain in that situation a few days. If the

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disease exists, it will probably be developed in that time. Potatoes preserve their freshness and flavor better in pits than stored in cellars, if they can be perfectly protected from frost and water. It does not appear necessary to give any detail of the process of pitting potatoes, which is so well understood by every farmer.

The hoe is the ordinary instrument used for digging potatoes in this country, but the operation is slow and awkward, and injurious to the tubers by cutting and bruising them The graip, which is very like a dung fork with flattened prongs, or even a sharp pointed and long handled spade, is much superior to the hoe, but the most efficient implement for the purpose is the potatoe hook. This can be found in any agricultural warehouse.

Potatoes are sometimes lifted with the plow. This method is best adapted for drills, but is not highly approved. It is aided by following the plow with a light drag, which has a tendency to bring the tubers to the surface. The plow should have neither a coulter nor fine point. A section of the field should be embraced for the work, so that in passing back and forth the potatoes will be thrown up at the right hand of the plowman, without any interference with the other drills.

The tubers may be assorted with more accuracy and convenience, when they are gathered in the field, than at any other time. In England, this work is performed with a wire riddle. The bruised, cut and small potatoes should be separated from the others for feeding, particularly if they are intended for market. This is inculcated by both economy and neatness.

When it is desired to force the growth of the potato for early use, they should be planted as early as possible in warm and dry soil, and a fork full of unfermented horse dung may be laid over the seed in each hill. In this culture the tuber will probably be used before it is liable to be attacked by the disease. The seed may be advanced in sprouting, by being deposited a few days in a pile of fermenting horse dung. In removing and placing the plants, care must be taken not to break or injure the tender sprouts.

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Innumerable varieties of the potato are to be found in cultivation. Every section of the country possesses those which are particularly preferred. A fact in the history of this root is worthy of attention. For a period, a pecular kind holds the highest estimation, as superior to all others for some particular excellence. It gradually degenerates, loses the popular favor, and is superceded by a new favorite. This process of deterioration may be witnessed in most plants, which, for a series of years, are cultivated in the same climate, and upon the same soil.

In selecting the variety of potato for cultivation, a regard should be had to the purpose for which the crop is intended. Some varieties are distinguished for early maturity, as the Early Frame and Early June, others for their delicacy and excellence, as esculent. Among those may be classed the Carters and Mercers; while others, coarser and more prolific, are esteemed the most valuable to be cultivated for feeding. Selection should be made in reference to these facts.

Although the exposure to the attacks of the disease to which the potato will continue to be subject, must exert a depressing effect upon its culture, other causes will tend to promote it. Although the most active of these may be enumerated, the increased facilities of transportation, and the demand for them in the manufacture of starch. Where the farmer is so situated as to enjoy an easy access to a starch factory, the culture of the potato claims his increased attention. If the tubers can be transported at once from the field to the factory, the labor and expense of several additional handlings will be avoided, as well as the risk and inconvenience of storing, and the contingency which sometimes occurs, of the late development of the disease. Although he may receive low prices, he will find the crop remunerative.

I have before alluded to the producing of potatoes from the seed contained in the ball. This is an interesting and important process. Various methods are pursued in the preservation of the seed, and the propagation from them of the plant. The mode suggested by Mr. Stevens appears to be simple and intelligent, and is derived from his correspondent. He says, "The seed apple or ball should be

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carefully collected when the potato is dry, because those apples which fall off, of their own accord contain the best seed. The apples are suffered to remain until they begin to rot. They must then be pressed and permitted to remain in their juice or slime, until the latter, by decomposition, be changed into water. The seeds, as is practised with cucumbers, should be then washed out clean. Early in the spring make a hotbed in the ordinary way, and rake in the seed. A bed 13 feet by 14, will raise plants sufficient for eighty square rods of land. This bed should be carefully watered and attended. When the plants have attained a length of six inches, they may be planted out at the same distance potatoes are usually planted. They should be put in at such a depth, that two-thirds of the plant will be covered. The future treatment of the plant may be exactly the same as potatoes which have been planted. If strictly attended to, the first year's crop will yield potatoes of the size of a hen's egg, and a much richer harvest than any crop from cuttings could yield. I have actually had plants which have yielded upwards of 100 potatoes, some the size of hen's eggs, many as large as walnuts, and all the others sufficiently large for planting."

When the potato crop is harvested, the haulms should be gathered, and conveyed to the compost heap or hog pen, to be converted into manure.

Before closing this article, I feel it necessary to again advert to the subject of the potato disease. In addition to the expedients already mentioned, various remedies, of a different character, have been prescribed, and were supposed to have some temporary or partial effect, but none, I believe, has proved permanently efficient. Among these, it has been recommended, with much confidence, as a successful preventive, to cut off the tops of the stem near the surface of the ground, immediately after flowering, and to cover it with about two inches of earth. This plan is proposed under the impression, that the disease is communicated to the potato, by the medium of the vine. Again, it has been suggested that the tuber should be cut, for planting, longitudinally, in order that each piece should contain eyes from both the ends and sides of the potato. By others, who believe that the affection

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was caused by rain descending along the stem to the tubers, at some particular period of their vegetation, it was proposed to form the earth about the hill into an apex, which would shed the water, and to force the stem into a lateral direction in its growth.

Planting in autumn, is considered by many European cultivators to be a partial security against the disease, and the incidents adduced, in connection with this culture, seem to sustain the opinion. Whether the practice may be adopted in this State, can alone be determined by experience. The great pressure of farm business, which usually occurs with us at that period, will be an objection. The low temperature to which our climate is exposed, and its severe alternations, may also prove impediments. We know, however, that tubers left accidentally in the ground through the winter, will vegetate and flourish in the succeeding spring; but it may still be questioned whether similar results would attend an entire crop, artificially planted. The same mode of planting, and subsequent tillage, is pursued in this culture as when the potato is planted in the spring.

The prevalence of peat or moss in the soil, is supposed to exert a favorable effect in the protection of the potato from the disease. It should be remarked, that special manures are far less promotive of its attacks, than strong barn-yard dung, and that neither should be applied to an extent that will produce a highly luxuriant growth of the plant. A singular and striking fact, which philosophy will find it difficult satisfactorily to explain, but which appears to be well authenticated, is worthy of notice. It is suggestive of theories that my limits will not permit me to discuss. It is stated that seed potatoes, when severely tainted by the disease, will (especially if planted in autumn) produce tubers, perfectly, or in a great degree, exempt from the affection.

Although we may confidently repose in the conviction that this sore scourge not only to agriculture, but to civilized society, has become mitigated in its virulence, and more limited in its extent, we can scarcely look for its entire extinction, or expect that it will be controlled by human means. We can alone hope that the

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recuperative energies of nature may overcome it, by some agency as mysterious and subtle as has been the affection.

The Osier.—This name is given to those willows which are adapted for basket making, and similar purposes. The cultivation of the willow is just now producing a very considerable excitement in the public mind. I have had no personal experience in this pursuit, and derive the materials for the following article chiefly from an intelligent paper on the subject, embraced in the Patent Office Report of 1853.

Several varieties of the European Willow are enumerated as adapted for culture, and particularly the Salix viminalis, Salix rubra, Salix trianda, &c. I entertain no doubt but future investigations will discover those equally favorable for the purpose, in the innumerable species and varieties of the native Willow, which throng our swamps and mantle the margins of our streams.

The soil most congenial to the osier is a deep, sandy loam, maist and rich, and if possible, so situated that it may be irrigated at pleasure. They will often succeed however, on a dry soil When low, and naturally wet, the land should be completely drained. The ground should be carefully prepared, by thorough plowing, and abundantly manured, being made as rich as is required for a wheat crop. A few rows of the Osier may be advantageously placed upon embankments of ditches and the brinks of rivers, and will in these places answer the double purpose of preserving the earth in its position, and producing crops of sprouts. The Willow may be propagated the most conveniently by cuttings, although they may be grown from the seed. The Osier cuttings should be taken from sprouts of one year old growth, and be twelve or sixteen inches in length. They should be cut straight across at the bottom, and sloping on the top, and planted perpendicularly, being inserted three-fourths of their length in the earth, with the soil firmly pressed about them, particularly at the ends. The top end of the cutting, if soft, should be removed. Sprouts of two years old may be used, but they are not superior for the purpose, and are more expensive.

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The rows of Osiers should be eighteen inches distant, and the plants one foot apart. This arrangement will require 20,000 cuttings to supply an acre, according to the estimate of the authority I have quoted, although other writers speak of 14,000 being sufficient, and recommend setting the plants further apart. These distances will not be found too near for the first five years, and then, every alternate plant should be removed. The cuttings of two years old may be planted in the autumn, on well drained land, but the earth should be carefully pressed around them in the spring. Other cuttings should be set in the spring.

The Osier plantation must be carefully hoed and cleaned every season. The rotten stumps should be removed, and the redundant sprouts broken off at the base. When too numerous, they should be thinned out with care. This promotes the growth of the remainder, and one shoot of six feet in length, is of more value than four of three feet. The proper season for cleaning and thinning the stocks is March or April.

The sprouts should be cut for use, in autumn, immediately after the fall of the leaf. As soon as the rods are cut, they should be placed in bunches 3½ feet in girt, and, if not intended to be used green with the bark on, the bunches should be immediately set on their butts in standing water, to the depth of three or four inches. Here they should remain during winter and spring, until they begin to sprout, when they are ready to be peeled.

This process is very simple, and may be performed by old men, women and children. The machine, and the process of peeling, mentioned by Mr. Bement, in his excellent article on the Osier, in the Transactions of 1852, to which I am very much indebted, are very simple, and "consists," he says, "of a piece of tough, sound wood, about two inches wide and one inch thick. In the top two sides of a triangle is cut out, like the letter V, opening about one inch at the top, and coming close together at the bottom. This machine may be firmly fixed in the end of a strong wooden bench, something similar to that used by coopers for shaving hoops. Another machine may be made of iron rods, half an inch in diameter, welded together, and forming a crotch

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at top like the wood. The crotch need not be over one and a half or two inches long. This instrument may be inserted into the top of a stake or post, set firmly in the ground. When the instrument is secured and ready to be worked, with a bundle of the willows, washed from the mud, the peeler sits down opposite to it, takes the willow rod or sprout in his right hand by the small end, and puts a foot or more of the thick end into the machine, and draws the willows towards him, by which operation the bark will at once be stripped from the wood. In most cases, once drawing the sprout through, the bark will all strip off; if not, the sprout should be turned and drawn through where the bark adheres, and the peeling is completed.*

"After stripping, the willows should be spread in a clean dry place, until the moisture has evaporated, to prevent mold or mildew, and then put up in bundles, of from fifty to eighty pounds each, carefully bound at several places with some of the sprouts, to prevent breakage or damage in moving them. After being peeled the rods will keep in good condition for a long time, till a proper market is found for them. Sometimes it is necessary to boil or steam them before stripping, which bleaches them at the same time. They will now be fit for market, and should command from three to four cents per pound by the quantity."

Madder.—It is a subject of equal surprise and regret that the culture of this highly valuable plant has received, in this country, so little attention. My practical knowledge, in relation to it, is very limited, and I am chiefly indebted for the materials upon which the following article is founded, to an instructive paper contained in the third volume of the Transactions of the State Society, from the pen of Mr. Bateham, who embodies in that paper the experience and views of Mr. Swift, of Erie county, Ohio, an extensive cultivator of the plant.

Mr. Ellsworth, of the patent office, estimated, in 1844, the yearly importation of madder at five thousand tons, which, at the

* The Country Gentleman of June 21, 1855, states that "Mr. Geo. J. Colby, of Bolton, Vt., has recently invented and put in operation, a machine for peeling the willow, which is said to perform the work with great rapidity.

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low average of ten cents per pound, amounted to the annual expenditure of $1,000,000, for the purchase of a commodity which, with perfect ease and certainty, might be produced within our own limits.

The culture of madder has been regarded with some repugnance, under the impression that it is tedious and laborious, in addition to the fact, that the returns from the crop are not realized until the third or fourth year. Mr. Bateham states, that the actual labor expended on this crop, does not exceed that required for the production of most farm commodities of equal value. Mr. Swift produced, at the rate of 2,000 lbs. per acre, which he sold at 15 cents the pound, equal to $300 per acre. He estimated the aggregate labor in the production at $75, the use of the land at $16.00, and the grinding, packing, &c., at $9.00, making a total expenditure of $100, and leaving a net profit of $200 per acre at the end of the fourth year. It is proper to add, that Mr. Swift felt assured of his ability, from the improved knowledge he had derived from his experience and observation in the culture of the crop, to raise, with the same disbursements, three thousand pounds to the acre. The real result indicates the growing of madder to be a highly remunerative business, while the maximum anticipated, would render it among the most profitable of agricultural pursuits.

The soil most suitable to this crop is a deep, sandy loam; an alluvial bottom is peculiarly congenial to it. A prevalence of vegetable mold, such as decayed leaves and wood produce, is desirable. The land should be dry. The method pursued by Mr. Swift, in the preparation of the soil, was the following: he plowed very deep in the autumn, and early in the ensuing spring spread evenly over the surface about one hundred loads of well rotted manure, which he plowed under with a deep furrow, and then dragged the ground, until it was thoroughly pulverized. He next plowed the land into beds, four feet wide, leaving alleys between, three feet in width. He then made the beds smooth with a harrow or rake, and reduced them to a level with the alleys. In this form they are prepared for planting. Madder sets, or seed roots, he states, are best selected in the fall. The slips of

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the second or third year's growth are most preferred, for transplanting, in Europe. Those used for this purpose are the horizontal or uppermost roots, containing eyes. They should be separated from the lower roots, and buried in sand during the winter in a pit or cellar. The sets may also be taken up in the spring, before they begin to sprout. They should be divided into pieces, three or four inches long, containing from two to five eyes, Mr. Swift made three drills lengthways of each bed, about two inches deep, one on each side and the third in the centre. The sets were planted along these drills, about ten inches apart, and two inches deep. An acre requires from eight to ten bushels of these sets.

As soon as the young sprouts appear, the earth should be well but cautiously hoed, so as to perfectly destroy the weeds, and yet not injure the plants. The hoeing and weeding must be repeated as often as weeds appear. In June vacancies should be supplied, by transplanting parts of the most thrifty roots. When the shoots have reached ten or twelve inches in height, the tops should be bent down to the surface of the earth, and all except the tips be covered with soil taken from the centre of the alleys. They should be arranged in every direction, so as to occupy the whole space, at intervals of about one foot.

When the sprouts are again about the same height, this process should be repeated, covering them as before from the earth of the alleys, which should be kept free from weeds, and loose by frequent plowing. The beds should be constantly hoed and weeded. The plants may be covered, in this manner, three times during the first season. The last covering should occur in September, or even later, if the frosts permit The tops, by this process, are converted into roots, with which it is intended to occupy the entire soil. In Flanders, in order to secure the most perfect dissemination of the roots, the soil is deepened, by trenching, from two to three feet.

After the vacant places have been supplied, little further inconvenience will be experienced from the weeds, but if any appear, they should be pulled by hand. In the second year, the

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management of the beds is very similar to the course pursued the preceding season. Care should be observed to keep the sides of the bed as high as the centre, in order to escape injuries from heavy rains. At this stage of the tillage, the alleys will have become deep and narrow ditches. If the earth has been exhausted, the third covering the second season may be omitted. The third year is attended with little labor or care; the weeds which appear should be pulled. The roots may be dug at the close of this season, if the ground is rich and the plants have been well tilled, although Mr. Swift considers it advisable to allow them to stand until the fourth year. In Flanders, where madder is cultivated more extensively, and with greater science, than in any other country of Europe, the roots are dug the third year, and often in the second, but "with less profit."

The process of digging is very simple, and should take place between the 20th of August and the 20th of September. In the country just referred to, it is the practice to dig a trench three feet deep, as near the outside row of roots as possible, to receive the earth. They dig the whole earth the depth of the trench, filling each opening with the soil from the succeeding row. This course effectually secures all the roots, and is a most valuable preparation of the soil for the succeeding crop. They do not repeat the madder culture, until an interval of six years.

The method of digging, pursued by Mr. Swift, is somewhat different. He advises, to cut off and remove the tops, and about half an inch of soil, with a sharp shovel; then, by a plow of the largest size, having a sharp coulter, plow a furrow, beam deep, around the edge of the bed, turning the furrow outward; then stir the earth with a fork, and carefully gather the roots; again plow a furrow as before, and pursue the same course, continuing to repeat the operation, until the whole ground is thoroughly plowed and picked over.

Immediately after digging, wash the roots in running water, or at a pump; then, take a round seive, two and a half or three feet in diameter, similar to a wheat seive; or make, with screen wire, a frame of the same dimensions. In this seive or box, place about

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half a bushel of roots, separate the bunches, stirring them about in the water and wash them until they are perfectly clean. After this is accomplished, spread the roots, about two inches thick, on a platform to dry. A convenient platform may be formed of common boards, about four feet wide, and fastened by cleets, on the under side.

The platforms should be arranged in rows, their ends north and south, with passages between the rows. Drying will be greatly facilitated, by elevating the platforms on poles, about eighteen inches from the ground on the south end, and six inches on the north end. After the second or third day, the madder should be protected from the dew and rain. This may be effected, by placing the platforms one upon another, to a convenient height, and covering the upper one with boards. They should be spread again each morning. Five or six days of fine weather will sufficiently dry the madder, until it is convenient to kiln dry and grind it.

The kiln described in the preceding pages, for drying hops, may be easily arranged for drying the madder root. Mr. Bateham, gives a plan, for the construction of an economical kiln, for this purpose, which is sufficiently large to dry, at one time, a ton of madder roots. "Place four strong posts in the ground, twelve feet apart one way, and eighteen the other; the front two, fourteen feet high, and the others eighteen; place girts across at the bottom, middle and top, and nail boards perpendicularly on the outside, as for a barn. The boards should be well seasoned, and all holes closed by plaster or otherwise. Make a shed roof of common boards; in the inside put upright standards, about five feet apart, with cross pieces to support the scaffolding; the first cross pieces to be four feet from the floor, the second two feet higher, and thus continued to the top. On these cross pieces, lay small poles, about six feet long and two inches thick, four or five inches apart; on these scaffolds, the madder is to be spread, about nine inches thick; a floor is laid at the bottom, to keep all dry and clean. When the kiln is filled, take six or eight small kettles or hand furnaces, and place them, four or five feet apart, on the

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floor, (first securing them with brick or stones from fire) and make fires in them, with charcoal, being careful not to make the fires so large as to scorch the madder over them; a person must be in constant attendance, to watch and replenish the fires. The heat will ascend through the whole, and in ten or twelve hours, the madder will all be sufficiently dried, which is known by its becoming brittle, like pipe stems."

"Immediately after being dried, the madder should be removed to a barn, and be thrashed or broken by machinery, so that it will feed in a common grist mill. If it is not broken and ground immediately, it will gather dampness, so as to prevent its grinding freely; any grist mill will grind madder properly. When ground fine, it is fit for use, and may be packed in barrels, like flour, for market."

Other writers recommend turning the roots during the process of drying, and the separation of the inner and outer portions of the roots, which constitute different qualities of madder.

Rape.—A plant of the cole kind, greatly cultivated in Flanders, for the sake of the seed, but extremely valuable also as green food for cattle and sheep, in winter and spring. There are different modes of treating this plant, according to the uses for which it is designed. The whole plant is of great service in feeding cattle; and after the seed is thrashed, the straw and chaff on being burnt, afford ashes equally valuable as the best potashes. Wheat yields an excellent crop after rape, and the plant is grown with great advantage on bog land, where paring and burning has been practised. Rape is very hardy, and with fair treatment it never fails on any soils. Cattle are so successfully fattened with it, that many farmers prefer it to turneps.

For garden culture rape is propagated by seed, and, like mustard, and other small salading, may be sown any period of the year, when in request, being allowed a separate bed. For the production of seed, some plants of a sowing which has been made about the middle of July, must be thinned to be about 18 inches apart: they will survive the winter, and flower in May or June of the next year. The seed, which is produced in great abun-

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dance, ripens in July and August, and must then be cut and laid upon cloths to dry, as it is very apt to shed.

In Europe rape is highly prized, not only for the oil, expressed from the seed, but for the cake left after the pressure, which is extensively used for feeding cattle, its qualities for this purpose resembling those of oil cake from flax seed. In England, it is said to be a preventive of the destructive ravages of the wire-worm. It is broken up into small lumps, and strewed upon the fields infested, and the worms which are very fond of it, imbed themselves in the rape cake and perish.

Rape belongs to the cabbage or turnep family, but it never heads like the former, and its roots are of little value compared with the latter. Of the two kinds most commonly cultivated, one is biennial, sown one summer and harvested the next, whilst the other is a spring or summer crop.

Rape, although but little known in the United States, has been tried in various parts, and found to stand the winters even in New-York and New-England. Whenever therefore a demand shall be made for this valuable production of the soil, or its near kindred of the cabbage family, *colza*, the United States can yield them abundantly in almost every part.

The rape seed is generally sown broadcast, in the last of July or first of August. This crop is greatly benefited the following spring by dusting gypsum, about 100 lbs. to the acre. In July the seed is ripe, and it can very easily be thrashed by hand or by horses. The oil of this seed pressed out, when purified, is without smell, gives a brilliant, clear, burning flame, and is universally used all over Germany, in the saloon of the rich and the cottage of the poor. The value of the crop is somewhat precarious, because it is subject to so many contingencies; the turnep fly and the caterpillar fly prey upon it when young, and when in flower a small beetle, (*Haltica nemorum*,) often eats away the blossom bud, or lays its minute larvæ in the petals, ultimately furnishing every seed pod with a maggot, which either eats the seed away, or forcing the pod open when nearly ripe, causes it to fall out. When spared these calamities it is, however, a very remunerating crop.

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In England, as well as on the continent, the rape, when cultivated for seed, is frequently sown in rows, about a foot apart, in July—the ground being well prepared. In October, the plants are transplanted, and the seed is ripe the following July. As a green food for sheep, rape is extensively cultivated in England. The land is thrown into ridges about two feet apart, as for turneps, and about the middle of May five pounds to the acre is drilled in, on the ridges, with superphosphate of lime. This makes a most nutritious food from August till the close of the year.

Having no practical experience in the cultivation of rape, we have given the most reliable accounts of its culture, which we have compiled from the best authorities in our possession.

The Apple Orchard.—A treatise on the general operations of the farm, would at this day be imperfect and inadequate, did it not contain some reference to the culture of the Apple. The amazing changes, which have created such vast improvement in the approaches to markets, of every section of the State, and exerted such salutary influences upon the value of numerous products of agriculture, have tended to convert the orchard, from a mere object of pleasure and domestic resource, into a highly productive and important department of the farm. Experience has also determined, that the choicest grafts may be cultivated with the same facility and convenience, as the worthless seedlings which formerly supplied the cider press.

My limits will only allow me to glance at this interesting subject, in the hope of attracting to it the attention of the agricultural community, and of guiding them to more ample sources of information. The elaborate and discriminating productions of Mr. Downing, and the American Fruit Culturist, a valuable practical work by Mr. J. J. Thomas, and the Fruit Book by Mr. Cole, may be enumerated, as peculiarly worthy of study, and as adapted to afford every desirable intelligence.

In forming an orchard, the selection of appropriate varieties of fruit is obviously of the highest importance. Intelligent works will shed much valuable light on this subject, but still our own

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judgment, moulded by the results and observation of other's experience, should be exercised. Climate, soil, the influence of a marine or inland atmosphere, must all be regarded in forming a decision.

Apples, cultivated with eminent success in one locality, often fail in another. I feel constrained to admonish purchasers to avoid all trafficing in fruit trees with transient and unknown venders. They are often unreliable, and impose upon the purchaser spurious trees. Several years necessarily must elapse before the character of the fruit can be determined, and if a deception has been practiced, the injury and disappointment are serious and most vexatious, while the time lost in the growth of an orchard cannot be retrieved. Nurseries exist in nearly every section of our own State, which are conducted by men of honor and integrity, in whose representations and responsibility the public may implicitly confide. It is far wiser to procure trees at these establishments, even at higher prices, than to risk the chances incurred in purchasing from unknown and frequently irresponsible itinerants.

When the amount of trees intended to be planted is small, it will be found most convenient and cheaper to purchase from the nurseries, instead of raising them ourselves. We shall also be advanced, probably, by this course, three years in the period of realizing the product of our orchard. The policy of home production will, however, at all times be kept in view by the provident farmer. The method of cultivating trees from the apple seed is very plain and easy. The seed, if required in any quantity, may most readily be procured from the pommace. This substance should be reduced to as fine a consistence as possible, then be thoroughly stirred in a vessel of water, when the seed will settle at the bottom, and the pulp may be poured off. The seeds may be planted in the autumn or spring. If the latter season is adopted, Mr. Thomas (to whose work I am indebted for many facts and opinions embraced in this article) advises that they should be preserved in moist, clean sand, or pulverized peat. The soil in which the seeds are planted should be light and open. Clays are not adapted to this purpose, owing to the circumstance

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that a crust often forms upon the surface of this earth, which would obstruct the growth of the tender plant. If planted in clay, the seeds should be covered in the drill with a fine mold. They should be planted in rows, sufficiently separated to allow the free use of the hoe between the rows. The author quoted, mentions three different modes of treating the young seedlings. They may be set out in nursery rows, when a year old, to be budded the second season; or they may be taken up and root grafted, when large enough; or they may be transplanted, and grafted at a subsequent time. I am not able to occupy sufficient space, to present an explanation of the various modes in use for propagating fruit by grafting and budding, nor could I accomplish it intelligently without appropriate figures and illustrations. The works referred to contain abundant details on this subject. A knowledge of these processes may, however, be much more successfully attained from the practical instruction of a skillful operator, than by any directions books can communicate. Every intelligent culturist should be familiar with this art, as it will enable him at all times to introduce into his orchard, by the exercise of a pleasant amusement, any variety of fruit his fancy or judgment may suggest.

In the choice of trees to form the basis of an orchard, much discretion is requisite to select those varieties which have borne the tests of climate and position, which experience has established to be standards, and which have been approved by public taste, as evinced in the demands of the markets. New varieties are constantly announced, to which remarkable excellence is ascribed. For a period they are in high repute, but generally, and with rare exceptions, they rapidly loose their high reputation, and are soon abandoned.

The well established and perfectly understood varieties should mainly be relied upon, while fancy kinds may be incidentally introduced. Among apples of this description may be classed the Early Harvest, Bough, American Summer Pearmain, Gravenstein, Fall Pippin, Rhode Island Greening, Baldwin, Roxbury Russet, and Esopus Spitzenburgh.

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The orchards of our northern frontier have been enriched by the importation of various apples from Canada, which are of French origin. The Fameuse ranks among the most excellent of these, and, in congenial positions, has I think, scarcely a rival in both quality and productiveness, as an autumnal and early winter fruit.

The apple tree adjusts itself to most soils, but flourishes with the greatest vigor upon rich, deep and friable earth. Wet land is unfavorable to it, and hard and shallow soil impedes the necessary expansion of its roots, which spread themselves when not obstructed over a large area. Standing water is peculiarly injurious to all fruit trees, and if this tendency exists the land should be effectually drained. Deep and thorough cultivation eminently promotes the growth and bearing of a young orchard.

The trees selected for transplanting should be from four to six feet in height. More regard in their selection should be paid to the condition of the root than to the form and beauty of the stem. The tree should be removed with great care, and not wrenched violently from its bed, retaining as many of the fibrous roots uninjured as possible. The wounded roots should be cut off smoothly, to avoid their decaying.

The top of the tree should be diminished in proportion to the reduction of the roots. This operation is usually performed by the indiscriminate lopping of the branches, but it is recommended as a safer method to trim off the growth of the preceding year to the extent required. Some judicious authors advise the removal of the alternate buds on the branches, and this method possesses the advantage of preserving unimpaired the entire top of the tree. In the operation of trimming, zeal should be tempered by judgment. Injudicious trimming alike impedes the developement of the tree and mars its beauty.

The proper and skilful preparation of the ground is the preliminary measure, and most essential to the ultimate success of the orchard. The earth should be plowed deep, and loosened by the aid of a subsoil plow at least twenty inches. The soil should be made rich by an abundant application of manure. By the care-

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ful performance of these requirements, the progress of the young tree will be quickened, while it will be essentially preserved from the consequences of drought.

Large holes, not less than six feet in diameter, and from eighteen inches to two feet in depth, should be prepared for the trees. The subsoil, if cold or sterile, should be removed, and a fine mold enriched by rotted or compost manure be substituted. Fresh and unfermented dung can seldom be used in the hole without danger to the tree, and never should be brought in contact with the roots. The roots should be dipped in mud as an additional security, before planting the tree.

The trees, in forming an orchard should be arranged in rows, and stand about thirty feet apart. Let them be placed at the same depth in the soil they occupied before their removal. The earth should be slightly elevated about the tree, to allow for its usual subsidence. The roots should be spread in the hole in their natural position, the mellow earth being gathered gradually about them, and introduced among the fibers by the hand. Water may be applied to settle the soil about the roots. Mr. Thomas recommends pouring it from a watering pot, as the earth is sifted into the hole.

A stake should be fastened in the hole previous to the tree being placed, in order that the roots may not be wounded or displaced by driving it afterwards. The tree should be secured to this stake by a straw or woolen band, to protect it from the action of the wind. A mound, a few inches in height, is sometimes raised about the tree for supporting it, and the practice is highly useful, as a protection from mice and the effects of frost. When the land is cultivated in an orchard, while the trees are young, and the bark is tender, they are extremely liable to be marred and injured in plowing, by the team, whiffle-tree, and plow. They may be effectually protected from this exposure, by placing around them, at a proper distance, three or four short stakes, driven firmly into the ground.

Stamping or pounding down the earth about the roots is highly prejudicial. A method recently introduced of mulching, is of

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great utility in protecting the trees from hot and dry weather. This consists simply in arranging a thick layer of coarse straw, dung or leaves above the roots, and over about the same space they occupy. Excessive watering is peculiarly injurious to a young tree. Water should be moderately applied, and usually poured from a watering pot over the leaves and stem.

I feel constrained to repeat again, that vast benefits will result from the exercise of skill and care, in the preparation of the earth, and the transplanting of the trees. When skillfully managed, a tree will, under ordinary circumstances, commence bearing in the fifth year, and will, from that period, rapidly increase the amount of its product. Trees, embracing the choicest grafts, may now be purchased at $18.00, per hundred, and the aggregate expense, connected with their culture, up to the bearing, cannot exceed an equal sum. The use of the land, for ordinary agricultural purposes, is not interrupted, during this period. Instead of being injured, the young tree is benefited by the presence of hoed crops, particularly such as require thorough tillage.

When an orchard, which should contain about fifty trees to the acre, has reached the condition of full bearing, it should average five bushels to each tree. The price of grafted apples more frequently exceeds, than falls below, fifty cents the bushel. These facts afford data, upon which may be estimated the great importance and productiveness of the orchard.

The seasons appropriate to the transplanting of trees, are in autumn, after their growth terminates, and in the spring, previous to its commencement. Difference of views exists, as to which of these periods is the most suitable for the purpose. The preponderance of opinion, however, I think, at present, inclines to autumn, as combining in reference to the Apple, the most advantages.

Many and serious errors prevail in the ordinary method of pruning. It is generally performed, in a very reckless and slovenly manner. The operation, instead of being excessively severe at one time, should be moderate and progessive, and performed at intervals. The objects, which should be contemplated in pruning

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old trees, are the removal of the decaying branches, and the redundant limbs, which crowd each other, and the diminution of the innumerable sprouts, which, in a luxuriant tree, sometimes render it almost impenetrable, excluding the sun and air, and exhausting the vigor of the tree.

The process should be performed with a fine saw, chisel and pruning knife, but the use of an ax should not be tolerated. The excision should be smooth, and, when large limbs are cut off, the stump should be rubbed with tallow or a similar substance, to protect it from the effects of the sun and wind, and to prevent the discharge of sap, which injuriously affects both the wood and bark of the tree, where it adheres. Pruning is also resorted to, occasionally, to promote the productiveness of trees, when an excessive luxuriance of the woody growth, prevents the formation of fruit. This object is effected by cutting off, two or three times during the summer, the extremities of the sprouts, an inch or two, and by thinning out those that are redundant. This should be done first early in the season, and only repeated, when necessary. Some culturists produce the same result, by cutting a circle with a sharp spade around the tree, at a distance of about two feet; thus severing a portion of the roots, and arresting the luxuriance of its vegetation.

Much discussion has recently been elicited by the contradictory opinions which exist in reference to the most appropriate season for pruning. It was formerly executed always in early spring, as perhaps the most convenient period. This practice is now objected to, and the reason assigned seems plausible, that the condition of the tree at that time, in reference to the condition of the sap, is unfavorable to pruning, and that the amputated limbs, having no protection from the leaves, are injuriously affected by the sun and winds. The months of June or July seem at present to be regarded as the best season for the purpose, by intelligent nurserymen.

The Apple tree is infested by numerous enemies. The most common and formidable of them are the caterpillar, the borer, and aphis. The former may be found, by inspection, in the

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spring, in an excrescence, encircling a twig, and covered by a shining, gluey substance. If this is cut off and consumed, the entire colony in embryo will be destroyed. When the nests have been already formed, the most effectual mode for accomplishing their destruction is by fire. For this purpose, attach birch bark, or tow, dipped in turpentine, or some other inflammable material, to a long pole, ignite this, and hold the blaze in contact with the nest, until it is consumed. An inverted sod, with the earth uppermost, placed in the crotch of the limb on which they have nested, very seriously impedes the operations of the caterpillar, and often expels them from the tree.

The borer penetrates the wood of the tree, near the surface of the ground, and is exceedingly destructive. Mr. Thomas advises "the removal of the soil a little about the roots, and then wash the trunk and larger forks of the branches with a mixture of tobacco water, soft soap and flour of sulphur. The proportions are a pint of the sulphur, a gallon of soap and tobacco water, sufficient to reduce the whole to the consistence of paint." Mr. Downing, he adds, "recommends injecting, by a syringe, the liquid into the holes, and plugging them up in the spring with pieces of soft pine, dipped in tobacco juice, to prevent the escape of the perfect insect."

The aphis, a small insect like the plant louse, may be destroyed by an infusion of whale oil, applied with a syringe. The practice which sometimes occurs of white-washing trees with a solution of lime, I consider of questionable utility, and decidedly objectionable, when used in a consistency that forms an incrustation upon the tree. Scraping the dead bark and moss from trees, and washing the bodies thoroughly with strong soap suds, is useful.

Great care and patience are required for the gathering of the apple. They should be carefully picked by hand, and deposited in baskets—but the fruit should neither be thrown or shaken from the tree; a slight wound is fatal to its preservation. None but those which are fair and uninjured should be retained. The apples may be placed for preserving, in barrels or boxes, and their safety will be much promoted by alternate layers of dry

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chaff or sand. They should be stored in a dry and cool situation, and in as low a temperature as will be secure from frost. Apples are sometimes, for increased security, rolled separately in paper before being barreled.

The great value of sweet apples for stock, and particularly swine, is universally conceded, and would in itself render the apple orchard an important object to the farmer. I have used sour apples for boiling in swill, with much utility, mingled with pumpkins, beets, or other vegetables in which the saccharine principle predominates. They even, I think, give an improved relish to the potato, with swine, and render it, for them, a more healthful food.

The fruit which falls from the tree green, or partially ripe, and indeed all that prematurely falls, usually contains the embryo of the apple worm, or some other noxious insect, and should be assiduously gathered and fed to swine.

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COUNTY ASSOCIATIONS.

The county societies are generally in a very flourishing condition. The reports which are presented are many of them of very great interest, and give assurance that the best efforts of our farmers are being directed to the advancement of the agricultural interest. As in former years, the attention of the farmer has been turned to improved systems of husbandry, and it is gratifying to learn that success has attended the efforts in this direction.

The drought of the past season, so fearful in its character, has been very severe upon the agricultural interest. A circular, which is annexed, was issued by the Secretary in October, to ascertain, as far as practicable, the effects of the drought upon the farming crops. The responses which were received, have been in substance embodied in the county reports; and while the loss has been from this source very severe, it will be seen that in those portions of the State where thorough drainage has been most practiced, there the loss has been very much less than in other sections. The probability is, that far more will be done in this direction the ensuing year than has ever been done in any previous year.

In connection with this subject there will be found a very important and interesting article by the Hon. Geo. Geddes, of Onondaga, on "Rain, Evaporation, and Filtration," ante, page 150, to which we would call the special attention of farmers.

In the proceedings of the Cortland county society, will be found the address of the Hon. A. B. Dickinson, in which several matters of practical importance to the farmer are very ably discussed, and suggest matters worthy of careful consideration. In the Onondaga county report, the address of the Hon. Geo. Geddes is

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given, in which the history of the county is briefly sketched. Its geological character is given, and its agricultural capabilities, the methods of farming pursued, and the best means of improving the same. From this valuable address, it will be seen that this rich and prosperous county has been continually advancing, and the advantages which the farmers of that county possess, are most ably set forth.

We would commend a careful examination of the reports of the county societies, as there will be found in them many very valuable papers, worthy of careful perusal and of attentive consideration. Experiments in the use of special manures, in draining and irrigation are given, which give assurance that our farmers are becoming convinced of the importance of giving attention to these important subjects.

The Secretary visited several of the county and local fairs, and delivered addresses, and was greatly encouraged by the improvement manifested in the stock of the different sections of the State, in the neat and orderly arrangement of the farm and dairies, and in all the details of farm management. The improvement which has taken place within the past few years in farm buildings is most gratifying, and must attract the notice of every traveler through the rural districts of our State. Nothing more strikingly develops the attention which is being given to agricultural reading than this—the works of Downing and Allen are appreciated, and the tasty farm dwellings, the improved grounds and shrubbery show that our farmers are as fully sensible of the beautiful as any other class of our citizens.

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State of crops, 1854, *and the effects of drouth and of the wheat midge upon the crops.*

The annexed circulars were issued and addressed to the officers of the county societies and other gentlemen in the counties of this State, and the substance of their returns, as far as received, will be found in connection with the returns of the county societies:

CIRCULAR.

STATE AGRICULTURAL ROOMS, ALBANY,
October 23, 1854.

SIR—I am desirous of ascertaining, as far as practicable, the state of agriculture in your county the present year, and desire answers to the following questions at an early day.

Respectfully yours,

B. P. JOHNSON,

Corresponding Secretary.

What is the average, per acre, of the following crops?

1. Wheat. 2. Indian corn. 3. Oats. 4. Barley. 5. Rye. 6. Buckwheat. 7. Hay. 8. Potatoes. 9. Peas and beans. 10. Flax. 11. Fruit.

12. What has been the diminution of crops by drouth?

13. To what extent (if any) has the wheat crop been injured by the wheat midge?

14. Have drained lands been less affected by the drouth than undrained?

15. What is the state of farming generally in your county?

16. Is it improving?

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CIRCULAR.

STATE AGRICULTURAL ROOMS, ALBANY,
November 29, 1854.

Dear Sir—The New-York State Agricultural Society are desirous of collecting from each county, facts, from which a correct statement of our agricultural condition can be formed, and which may, hereafter, prove of great value in making comparison with our previous condition.

The circular is addressed to you, as you are probably familiar with all the facts which are desired, or the same can easily be ascertained through the officers or members of your county and town associations, or from other intelligent and observing persons.

Your attention is solicited to the following inquiries, with such observations as may be interesting and useful to your county:

1. The chief product of your county.
2. The *increase* or *decrease* this year.
3. The estimated number of acres devoted to this production, and the quantity and quality produced.
4. The condition generally of other important products, and the average quantity of each.
5. Tne increase or decrease in the number of acres under tillage, for all purposes.
6. The increase or decrease in the number of animal stock; the breeds most common, and what improvements are in progress, and what breeds of cattle are most approved for the dairy and for market.
7. The increase or decrease, or absence of scientific attention to farm cultivation.
8. Has drainage received attention; and if so, what are its advantages.
9. The increase, decrease, or stationary value of farms.
10. The place where the products of the county are marketed; what per cent of their value does the expenses amount to.

These facts are very desirable to be obtained, and will, if secured, enable us to form a correct view of the cultivation, products, and agricultural condition of the State, and being incorpo-

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rated in the annual Transactions of the Society, will prove important for future reference.

Replies are desired as early as convenient, and before the 1st of January.

Very respectfully yours,
B. P. JOHNSON,
Cor. Secretary.

ALBANY.

This society, although as yet in its infancy, bids fair to occupy a high rank among kindred societies in the State; although but two years in existence, its influence is already plainly perceptible in the increased interest manifested in the affairs of the society by the farmers in all parts of the county, as appears by the laudable spirit of competition, and the unusually large attendance at the last annual fair at "Washington Parade Ground," in the city of Albany, on the 26th, 27th, and 28th days of September last. The receipts, some $4,000, were such as to enable the society to offer an increased premium list for the year 1855, of $2,000, (double the amount offered at the past fair.) Notwithstanding the unusually severe drouth of the summer, the display in the agricultural and horticultural departments, furnished strong evidence of superior culture. The display of horses was unusually large, and in every respect creditable to the county.

The ladies', manufacturers', and miscellaneous departments, were well filled, and attracted general attention from the extent and beauty of the exhibition.

The receipts of the society for the year 1854, were about	$4,000
Expenses and losses, about	3,200
Leaving a balance in the treasury of.....	$800

The annual address was delivered in the afternoon of the last day of the fair, by Prof. Woolworth, of the State Normal School, a creditable production, and was well received.

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The display in "female equestrianism" attracted the general attention of the thousands present, and was highly applauded.

The annual meeting of the society was held at the State Agricultural Rooms, on the 3d day of January, 1855. Forty-six persons renewed their membership by paying the necessary fee of $1.

Officers for 1855.—President, A. Osborn, Watervliet; Vice-President, Luther Tucker, Albany; Secretary, G. I. Van Alen, Albany; Treasurer, L. G. Ten Eyck, Bethlehem; Managers, Robert Thomson, Albany; Christopher Warner, Bern; A. E. Willis, Coeymans; Richard Kimmey, Bethlehem; Stephen Marseles, Knox; Henry Sloan, Guilderland; Levi Shaw, Rensselaerville; H. E. Robins, Westerlo; Joseph Hilton, New Scotland; Lawrence J. Cohee, Watervliet.

The executive committee have since fixed upon the 25th, 26th, and 27th days of September next, as the time for holding the next annual fair, at the "Washington Parade Ground," Albany.

A. OSBORN, *President.*

G. I. VAN ALEN, *Secretary.*

ALLEGANY.

The annual fair of the Allegany Agricultural Society was held at Belfast on the 27th September, and was numerously attended.

The show of horses was fully equal to any former exhibition. The show of cattle, sheep, and swine was good, but hardly as numerous as on some former occasions. Some very good samples of grain were presented; also a large variety of fruit of superior quality. The ladies were also on hand with their usual variety of useful and ornamental work.

The past summer has been unusually dry, which materially injured the crops. Hay, oats, barley, buckwheat, &c., were not more than half a crop.

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The funds of the society are as follows:

Balance on hand at last report,		$212 87
Received from members of the society,		138 00
Received from State Treasurer,		93 00
		$443 87
Paid incidental expenses,	$12 48	
Paid premiums,	226 25	
		238 73
Balance on hand Jan. 1, 1855,		$205 14

Officers for 1855.—President, Doria Tracy, Caneadea; Vice-Presidents, Almon Benjamin, John Holmes, Joel Karr, Reuben Loomis, Ezra Starr, William Wilson; Corresponding Secretary and Treasurer, James Lockhart, Angelica; Secretary, John J. Rockafellow, Angelica.

CHAS. BENJAMIN, *late President.*

OFFICE OF ALLEGANY COUNTY AGRICULTRAL SOCIETY,
Angelica, December 4, 1854.

DEAR SIR—I have your circular of the 28th ult., calling for agricultural statistics of this county. I regret that it is impossible for me to give all the information you desire. I have no data to which I can go back for a starting point.

As to your inquiries:

1. The chief agricultural product of our county is oats.

2. Owing to the extreme drought of the season there has been no increase in this commodity from last year.

3. I have no means of giving you the "estimated number of acres devoted to this production," nor the "quantity produced." Its *quality* is full an average with other counties.

4. As to "other important products of the county," such as hay, wheat, corn, buckwheat, potatoes, &c., butter, cheese, wool, and cattle, there is a very rapid annual increase in quantity and

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quality, especially so of wheat. A few years since the county did not raise its own consumption. Now it exports largely, and of good quality.

5. There is a rapid *increase* per "number of acres under tillage for all purposes."

6. There is a large annual increase of animal stock. Breeds most common are the native and Durham. Considerable improvement is made in the breeds. Durham is "the most approved for dairy and the markets."

7. There is as yet but little scientific attention given to "farm cultivation." Public attention, however, is beginning more generally to awaken to its importance.

8. Drainage receives but little attention.

9. There has been an increase in the value of farming lands of more than 50 per cent. within the last five years—but little, however, for the last year, owing to the general depression of the "money market."

10. The products of the county are marketed mainly on the line of the N. Y. and E. R. R. and the Genesee Valley Canal. Cannot give the cost of marketing.

It will be remembered that this is decidedly a grazing, wool-growing, and *lumbering* county; hence less attention is necessarily and naturally given to the cultivation of field crops than in many of our sister counties. Our lumbering interests are immensely large, and constitute one of the most profitable sources of income to the county. Our beautiful pine forests, however, are rapidly giving way to the plow and the scythe; and as they recede, the application of the sciences to the culture of the soil advances.

The county is fast filling up with enterprising, intelligent farmers. Annual town fairs are becoming more general, and an in-

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creasing interest is every year felt in the promotion of agricultural science.

The winter meeting of the society has not yet been held.

Very respectfully,

JOHN S. ROCKAFELLOW, *Secretary.*

Average crops for 1854, *furnished by James Lockhart, Esq., Angelica.*

Wheat, average per acre, 14 bushels; Indian corn, 35 bushels; oats, 25 bushels; barley, 15 bushels; buckwheat, 8 bushels; hay, ¾ ton per acre; potatoes, 80 bushels; peas and beans, 15 bushels. Diminution of crops by drouth, from 30 to 50 per cent. Wheat crop not injured by fly. Drained lands have been less affected by the drouth than undrained. Farming generally improving.

CATTARAUGUS.

The undersigned respectfully submit the following statement of the operations of the "Cattaraugus County Agricultural Society," for the year 1854.

On the 22d of May, Horace Howe, Esq., of Little Valley, was appointed president of the society. From his well known public spirit and energetic character, [it is proper to say that this statement is written by the Secretary, without Mr. Howe's knowledge,] the friends of the society hoped that by reasonable pecuniary aid from the public, he would be able to place the society on an efficient footing; that its annual exhibition might be a credit to the county; that, by extraordinary effort, *farmers* might be aroused to the importance of these annual shows, so that here-

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after they would feel an interest, *do* and *act* their proper and rightful part. We are happy to acknowledge that these hopes were measurably realized, through the untiring exertions of Mr. Howe, aided by the executive committee, though not wholly. The usual complaints, however, were made by "the croakers," that farmers generally had no interest in such affairs; that it was a mere speculation; that John Smith, James Brown, and John Johnson Jones would get all the premiums. We are constrained to say that a large proportion of the revenue *was* contributed by persons engaged in other avocations than farming!

We feel it due to truth to here state, that whatever of efficiency this society has attained, is in a great measure due to the assiduous labors of ex-president Samuel Harvey, Esq., of Mansfield, and a few co-workers in the cause, who have labored diligently from its first organization to the present time; who have endeavored to impress upon the minds of the farming community the importance of these annual harvest gatherings; and who have contributed both time and money freely to advance its interests.

In order to have a good exhibition of domestic and mechanic's manufactures, it was deemed necessary to procure a tent, to be owned by the society; and by great effort one was procured, at a cost of about $400, and of the ground size of 5,000 feet, which was filled in every available space with the handiworks of the gentler as well as the sterner sex. The useful and the beautiful, from the household and the shops, exceeded all former displays.

A band of musicians, composed of Indians of the Alleghany reservation, 12 in number, discoursed music that would not be discreditable to Dodworth's. The skill displayed by these "Natives" was equal to the novelty, and attracted general attention, and won the sympathetic applause that good music always commands.

The fair was held on the 13th and 14th of September, in the village of Little Valley. Commodious yards were prepared, by

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Mr. Howe, for the exhibition of stock; and it was conceded that this department was superior in numbers and quality to any former show. The entries were as follows:

Eight bulls—two Durhams, one Devon, five grades of Durhams and Devons. Two bull calves—one six months old, Durham, weight 600 lbs.

Thirty-one yoke of oxen and steers. One yoke of twin three year old steers, (Durham,) owned by Asahel Crowley, Esq., of Randolph, attracted general attention, from their size, symmetry, and *twin-like* appearance. He intends taking them to the State Fair this fall. Thirteen cows, only, were entered; many of them fine animals, mostly grades of Durhams and Devons. Twenty heifers varying from three months to two years old; all good; grade mostly of Durhams, Devons, and Ayrshires. Ten stallions, all very fine animals. Nineteen breeding mares, generally good. Twenty gelding colts, one to three years old. Sixteen mare colts, one to three years old. Ten pairs matched, and fourteen single carriage horses, worthy of any fair in the State.

Fifty-two sheep; bucks, ewes, and lambs; fine wool and coarse; pure South Down and grades of different well known breeds; taken together they were a very choice lot. Twelve swine, were exhibited. Nine lots of poultry of all varieties.

Lorenzo Stratton, of Little Valley, contributed to the novelty of the show, two stately elks, which were captured on the eastern slope of the Rocky mountains.

The weather was beautiful the first day, and the competition and exhibition was kept up with great spirit; but on the second day violent rains continued, with short cessations, throughout the day; notwithstanding which, it was estimated that from 5,000 to 8,000 persons were in town to "see the sights," and to hear a very practical and instructive address delivered, beneath the frowning clouds, by Horace Greeley, of the New-York Tribune.

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There were some twenty entries of field crops, but only two persons have made statements. The last season was unusually dry, but never were better crops of corn raised in this county; and, by the following statement of Mr. Edward Vail, some astonishingly large crops were harvested:

[*Statement of Mr. Vail.*]

I last spring broke up four acres of meadow land, which had been used as a meadow for ten or fifteen years—the hay had generally been fed on the land. I put on a few loads of stable manure before plowing. The fore part of May I had it broke about four inches deep, each furrow laping on the preceding one instead of laying flat. I harrowed it thoroughly with a fine tooth harrow. I planted with corn between the 20th and 25th of May—the rows about four feet apart, the hills about three feet apart. It was a very even piece, except some injury done by the gray grub. When I commenced husking I measured off one acre on one end and husked, and measured carefully 207 baskets, each basket holding five pecks, so that I think it will make 103½ bushels of shelled corn. The rest of the field was not measured so particularly, but I think it averaged nearly or quite one hundred bushels per acre. My farm lies on the bottom land of the Cattaraugus Creek. EDWARD VAIL.

Otto, Dec. 25, 1854.

STATE OF NEW-YORK, } *ss.*
Cattaraugus county. }

On this 27th day of December, 1854, Edward Vail being duly sworn, says the above is true. EDWARD VAIL.

Sworn before me,

SELLICK ST. JOHN, *Justice.*

There was but little competition in butter and cheese—in the former article on account of the extreme heat of the weather.

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[*Cheese; statement of Mr. Manley.*]

The undersigned presents thirty cheese, of the aggregate weight of 2,990 pounds, made in thirty consecutive days, from the milk of thirty-seven cows, for competition for the first premium, at the annual fair, 1854, with a sample of ten on exhibition. My cows had nothing but common pasturage feed, and of course poor feed, owing to the severe drought of the present season.

My mode of making cheese is as follows: The night milk is set in tin pans to keep it cool until morning; it is then warmed (with the morning's milk) to 84°, by steam from a patent dairy steamer; the rennet is then put in, and remains thirty minutes, when the curd is cut fine with a curd cutter, and cooked to the temperature of 100° to 102°, until it is of a consistency of apparent dryness; it is then put into a cool wooden vessel and salted, care being taken to keep it fine; it is then put into the press and pressed hard—the harder the better.

NATHANIEL MANLEY.

Officers for 1855.—President, Horace Howe, Little Valley; Vice-President, Daniel Bucklin, Little Valley; Secretary, Lyman Tromeley, Little Valley; Assistant Secretary, Fuller Bucklin, Little Valley; Treasurer, John C. Peabody, Little Valley; Executive Committee, Lorenzo Stratton, Little Valley; Harmon Fisher, Little Valley; Stephen Aldrich, Little Valley; Charles Ellis, Little Valley; Henry Hoyt, Little Valley; Cyrus W. Fuller, Little Valley; Leicester Tracy, New-Albion; Jeremiah Kenyon, New-Albion; Nathaniel Manley, Mansfield; John Wipple, Mansfield; Nathaniel Walker, Mansfield; Samuel Harvey, Mansfield.

The next fair is to be held in the village of Little Valley.

H. HOWE, *President.*

JOHN C. PEABODY, *Secretary.*

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Affidavit.—The enclosed statements of the affairs of the Cattaraugus County Agricultural Society, for the year 1854, are true, according to the best of our knowledge and belief.

H. HOWE, *President.*

JOHN C. PEABODY, *Secretary.*

Subscribed and sworn to before me, this 5th day of March, 1855,

FULLER DUCKLIN, *J. P.*

TREASURER'S REPORT.

Received from subscription and members,	$487 75
from the State,	86 00
at the door of the tent,	130 76
Total,	$704 51

Paid for tent and freightage,	$370 22
an address by Horace Greely,	24 50
hay on days of the fair,	10 00
services by Mr. Dockstader,	50
Ira Wood and D. Hilsdreth, to watch tent,	2 00
D. Burrell, for services,	75
Charles Aldrich, for printing,	12 00
freight on books,	4 03
discount on $150,	1 50
bad bills on hand,	7 00
candles to light tent,	11
Horace Hews, expenses in obtaining subscriptions,	2 94
John Manley's expenses in obtain'g subscript's,	52 64
Wm. Gaylord, do do	4 43
John C. Peabody, do do	5 75
Lyman Blackman, do do	7 00
music on fair days,	$13 00
postage and stationery,	3 50
diplomas,	15 00

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Paid premiums to the amount of.....	$143 00
On hand March 5,.....	24 64
	$704 51

JOHN C. PEABODY, *Treasurer.*

CAYUGA.

Letter from John S. Clark, President Ag. Society:

AUBURN, *December 1st*, 1854.

B. P. JOHNSON, Esq.:

Dear Sir—Your circular of Oct. 23d is before me. I have delayed answering thus long that others interested in agricultural pursuits living in the extreme limits of the county, might be consulted, and thus obtain more reliable information than I from my own personal observation would be able to furnish.

Our wheat crop the present harvest was the lightest I have ever seen in Cayuga, in fact, almost a total failure. The autumn of 1853 was peculiarly unfavorable for the germination, and after growth, the following winter unusually severe. Extreme cold, succeeded by sudden changes to thawing and freezing, made sad havoc with our prospects for bread. The harvest approached; the *midge* made its appearance, taking the lion's share, leaving the husbandman a slight recompense for his toil. This of late is one of our most unsparing enemies, destroying without remedy; while our county heretofore could be rated at 15 and 20 bushels, according to season, I can safely say the last cannot possibly exceed 10 bushels to the acre.

Indian corn. This great American staple, as usual, is reliable and profitable, and is conceded by all to be fully up to the average of former years. The grain is sound and heavy, the stalks were secured in good condition. A new variety from the "Patent Office" called "King Philip," tried as an experiment, produced

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a good ear 100 days after planting, no earlier nor better than varieties usually depended upon in this vicinity, viz: "Dutton," "White," "Eight-rowed," "Yellow," &c. The yield will probably average twenty-five bushels to the acre.

Oats, a favorable season and fair yield, somewhat injured by the drouth, for those sown late, but will be likely to average twenty-five or thirty bushels.

Barley has done exceedingly well, and commanded paying prices. On nineteen acres of my own sowing, we secured something over 600 bushels; sold at $1 per bushel. The average in the county will not exceed twenty bushels.

Rye very little sown, and generally considered as unprofitable, the yield never exceeding that of wheat, and bearing only half its price, only cultivated for the value of the straw for farm and mechanical purposes; yield usually ten to fifteen bushels.

Buckwheat. This fickle crop is not cultivated extensively, sometimes yielding twenty and thirty bushels to the acre, and again not to exceed five. This year probably ranging in the neighborhood of 10. Cultivated principally for home consumption, and as a substitute for the high-priced wheat.

Hay this year is remarkably light and scarce, commanding a price in market from $12 to $16 per ton. The yield will not exceed a ton to the acre. This crop suffered materially from the drouth, both in yield and the number of acres mown, many turning their cattle in their meadows from want of sufficient pasturage.

Potatoes are generally sound, more so than for some years previous. I have observed a new feature, and find the same prevalent somewhat in other quarters, which is, the new tubers commence growing in autumn, and unless immediately secured soon become perfectly worthless. Is this in any manner connected with the prevalent disease, or is it an accident of the season. The yield will average somewhere near 125 bushels per acre.

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Peas and beans, few cultivated; generally yield from fifteen to twenty-five bushels. The great difficulty experienced with peas, is the ruinous work of the pea bug. The south parts of the county are somewhat exempt from this difficulty.

Of flax I no not now recollect to have seen but one piece this year, and should not probably have seen this had not a worthy and industrious lady of sixty years, remembering the amusements of her youthful days, caused an extra one-half acre to be cultivated for her especial benefit, that the good old-fashioned humming of the Scotch wheel might once more greet with its melody the ears of the household, causing the flaxen haired urchins to stare with a mixture of amazement and curiosity, and the unmarried daughters to blush apologies and plead ignorance of this unfashionable accomplishment.

Of fruit, an ordinary yield, generally fair, and commanding good prices.

As to the drouth diminishing the crops, I can safely say it has, and materially so. The springs and streams have not in thirty years been so low as now. Cayuga, Owasco, and Skaneateles lakes are lower by some two feet than for many years previous. This state has continued during the summer, and the consequences remain in part undeveloped. The stock are thin for want of sufficient fall feed, and should the winter prove unfavorable, the decrease from this quarter alone would be seriously felt. Store sheep and cattle are offered at prices indicating evident anxiety to avoid wintering more than actually necessary.

As to the injury of the wheat crop by the "fly." For some years this evil has not visited us materially, and in comparison with others, is almost unnoticed. An enemy far more destructive has been among us, commonly called the weevil, properly the "midge." The true weevil generally confines his labors to a more southern latitude, and can be evaded by proper precautions; but for the "midge," I know of no remedy, not even to abandon the crop. Wheat is his favorite; but in the absence of this, will not object to rye and oats, and is especially fond of barley. From this enemy the farmers of Cayuga may well pray

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to be delivered. It has thus far baffled all our ingenuity to discover a remedy. No precautions prevail. Some farmers have abandoned the cultivation of all white varieties, confining themselves to Mediterranean. This, from its being a bearded variety and early, but more from the good sense of the insect, measurably escapes.

As to the state of farming, I scarcely know what to say, or by what standard to measure it. This subject should be examined with attention and care. In the absence of a better comparison, we are willing to stand a public examination with our sister counties, and appeal to the records of the State Society for the data.

So far as my observation extends, the farming of this county is second to none in the State. The superiority of our products in the markets indicates the richness of our soil; the red and green shales are reliable, and, together with the facilities for obtaining "plaster," render this the most desirable soil in the State; the number of premiums awarded to Cayuga county by the State Society, also bears witness to the interest our farmers take in improvements. The impetus given to superior breeding by such men as Sherwood, the Sheldons, the Remingtons, Page, &c., is felt materially in all the grazing States. Nor is this influence confined to the grazier: in this connection we find an honorable pride and competition to produce the best crops of grain, and keeping the farm in the best order. Although the soil generally was more fertile thirty years since than now, I have good reason to doubt of their producing better crops than now; from the superabundance of vegetable matter in the soil, a large growth of stalk might be expected, while the proper element for producing a corresponding yield of grain seemed to be wanting.

The light of science is shedding its influence over the fields of the husbandman. We no longer consider it as an art alone—content to plow and sow—trusting to Providence alone for the increase. Men are beginning to see the propriety and economy of doing things well. Young America, by experience, are led to mistrust the idea that our fathers were the exponents of all wis-

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dom. The plow of to-day is far different from that of forty years since; so is the plowing. I remember the time when thrashing machines were unknown; our wheat is all thrashed now by machinery; our grain is sown extensively by machinery, in a manner far superior to that by hand; our fanning mills can now separate the chess from the wheat, and consequently farmers can cultivate wheat in one field and chess in another—the theory of transmutation to the contrary notwithstanding. And again, I have a vivid recollection of the sickle, but thanks to this spirit of improvement, they have departed, though the scars remain; the grain cradle succeeded, and this was considered a vast improvement, and soon became the common instrument for cutting grain. We are all familiar with the history of the "reaper," at the London exhibition, that "cross between an ancient war chariot and a modern windmill," as the facetious reporter saw fit to denominate it; this undoubtedly created a greater sensation than any other one thing exhibited, the palace excepted: this alone has effected a world-wide revolution in agricultural industry. We find this same spirit of improvement in every department that may be in any manner connected with the subject under consideration. Farmers are now, more than ever before, seeking for information—not only for labor saving instruments, but how they can best and cheapest improve the soil; many are satisfied the true and only way to effect this is first to improve the mind. Our soils are variable—often silicious, shaly, and alluvial are within a few rods of each other; each should be managed differently; manures adapted to one would be a manifest injury to another. In conclusion, I would repeat, we have encouraging prospects, and should peace continue, prosperity is sure to await us.

Respectfully yours,

JOHN S. CLARK.

Mr. Clark further writes us, in answer to second circular.

December 30, 1854.

B. P. Johnson, Esq.:

Dear Sir—In answer to your circular soliciting agricultural information, I send the following:

The proper answer to the first interrogatory is somewhat difficult to determine. The fact that, in this county, corn and wheat

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crops are generally so evenly balanced with the fluctuations of each from year to year, places first the one and then another at the head of the list. Ten years ago, 480,000 bushels of corn and 650,000 bushels of wheat were produced in this county. Five years later over 700,000 bushels of corn, and only 480,000 bushels of wheat, this being far below the average of the latter crop. In 1852 and '53, the wheat crop again reached 700,000 bushels; corn about the same. The harvest of 1854 again differs materially, wheat falling below 300,000, corn nearly to its average. Somewhere near 40,000 acres are annually devoted to wheat, and little evidence of diminution. The chances for obtaining a remunerating yield encourage its cultivation from year to year. From 15,000 to 25,000 acres are devoted to corn, with an evident increase from year to year. Our wheat yields from ten to twenty-five bushels per acre, averaging less than fifteen, while corn ranges from twenty-five to forty, averaging about thirty.

Of our wheat the quality is superior, the flour commanding the highest fancy prices in New-York city, with the exception of the famous Smith brand of Wheatland, which oversells ours a shilling per barrel, and this not from the superior quality of the flour, but from the appearance and condition of the barrel, resulting from extra care in making and cleanliness while in transit to market.

As to our corn, the quality is unexceptionable, with an evident increase both in the number of acres and the product per acre. Cultivated in connection with wheat, barley, oats, and clover, it will ever be a reliable favorite.

The next in value of our products, are barley and oats. Coming as they do in rotation between corn and wheat, they might with propriety be considered as forming one crop. However, some parts of our county seem peculiarly adapted to the oat, and are unfavorable for producing wheat and corn. Consequently we find from 20,000 to 30,000 acres devoted to the oat crop, usually averaging thirty bushels to the acre.

From 600,000 to 800,000 bushels of oats are annually produced, the last year, probably reaching near the latter estimate. In 1845,

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over 8,000 acres were cultivated for barley; yielding 143,000 bushels; as that year was notoriously disastrous it cannot be taken as data for the average. In 1850, over 300,000 bushels were grown on 13,000 acres, while the present year I am confident has reached fully 400,000 bushels, averaging nearly 25 bushels to the acre. Our barley this year was mostly sold at $1 per bushel, vieing with the receipts from either corn or wheat. Next in value is potatoes, though mostly for home consumption, it is nevertheless one of our most important products. About 500,000 bushels are annually produced, the yield averaging from 100 to 125 bushels per acre. The last six years have been remarkably disastrous, though they now appear healthier. In addition to the above, some 50,000 bushels of buckwheat, nearly the same quantity of peas, from 3,000 to 5,000 bushels of beans are annually produced, the amount varying materially with different years, though we generally confine our attention to the production of cereals.

In connection with these, many other products are found to be profitable. The coarse fodder produced in growing grain can be profitably used in rearing cattle for the butcher and dairy; and the milk and whey of the dairy for the rearing and fattening of swine. Accordingly, we find from 18,000 to 20,000 cows producing from 16,000 to 18,000 lbs. of butter, together with 200,000 lbs. of cheese annually. This latter product has increased materially in the last ten years, probably five fold. From 25,000 to 50,000 cattle and swine are annually slaughtered or sold in the eastern markets alive. Some of our farmers find a source of profit in rearing horses. We all depend on this noble animal to do our heaviest work. Every farmer has at least a pair, and many enter extensively into the business of rearing, buying and fitting for our eastern markets. For some years, high prices have tempted us to part with even more than expediency would seem to indicate. A nice, perfect filly is rarely seen. This oversight has become apparent, and many are attempting improvement.—The sheep and wool trade is another item in our products. Not far from 250,000 sheep are now owned in this county,

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producing probably 1,000,000 pounds of wool, the high price of which for years past has tended to increase the number.—Many other articles are cultivated in particular localities, among which are clover seed, teasles, apples, pears, poultry, &c. The number of acres under cultivation is constantly increasing. No lands are abandoned when once brought under the plow. The general fertility is lasting, well drained by nature, easy of cultivation, adapted in the main to a great variety of products; nothing is apparently wanting for a continuation of prosperity.

Scientific knowledge, as applied to agricultural pursuits, increases with our increasing prosperity. Farmers try experiments and publish the results to their neighbors, either orally or through the medium of the public press; others hear, read, and are none the less respected for doing so.

Our lands are generally porous, rendering drains unnecessary or unprofitable, unless confined to some wet place; entirely worthless without. We have two tile machines doing a fair business. Many failures in draining result from the imperfect manner in which the work is accomplished. We want experienced workmen, and until we obtain such our draining experiments will result in partial or total failures.

The value of our farming lands has increased in the last ten years full fifty per cent, with no prospect of depreciation. Our conveniences for marketing our products are unparalleled in central New-York. In a territory fifty miles long, averaging twenty in width, few draw their products over ten miles, and a great majority less than five. Bounded on the west by Cayuga lake and Seneca canal, places those residing in the western half of our county in direct communication with New-York by water. Those living in the north find the same market by the way of Lake Ontario. The county is traversed east and west by two railroads, from seven to fifteen miles apart, while the Erie canal takes a middle course between them. A railroad from Sodus Bay, on Lake Ontario, traversing the county centrally from north to south, is in process of building, and will undoubtedly soon be completed. Consequently our expenses for marketing are light, probably less than two per cent for the home, and ave-

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rage 15 per cent for the New-York markets. Our best farmers send their products to New-York direct, excepting wheat, which is sent by the millers in the shape of flour. An extensive flouring mill, located on the canal, generally grinds all in the northern section, while those located on the Owasco outlet expect to flour that grown in the central localities.

Yours respectfully,

JNO. S. CLARK.

TREASURER'S REPORT.

By the last annual report, made January 12, 1854, it appeared that there was a balance in the treasury of $344.01, which amount was carried forward to the credit of the society in account for the ensuing year.

The amount of receipts during the current year ending Dec. 20th, 1854, (at which time I made my annual report for the past year,) was $1,267.90, of which $11 was received for memberships previous to the last fair; $116 for subscriptions raised by my solicitation in Auburn; $934 receipts on the fair ground; $151 received from the State; $48 avails of the agricultural festival, and $7.90 from various other sources; which several amounts equal the sum of the receipts—which sum, together with the amount of the balance in the treasury on the 12th of January, 1854, amounts to the sum of $1,611.91.

The expenditures during the year, for premiums and expenditures, from the 12th of January, 1854, to the 12th of December, 1854, amount to $1,152.22, of which was paid for premiums (including $9 premiums of the previous year), $545. $607.22 was for expenses, as follows:

Paid for use of lumber,	$213 00
for building the fence,	51 00
for building exhibition houses and office, setting posts, making pens, and labor,	96 24
for rent of land,	25 00
for police, marshals, watch, and gate tenders,	44 00
for hay,	16 88

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Paid for clerk hire,.	$20 00
for printing, ...	59 38
for postage and materials for the fair,.	16 85
for expenses of the festival or dance,.....	39 00
for services rendered by myself,....	25 00
Which several items, together with the amount paid for premiums, equal the sum of the expenditures, to wit:	$1,152 22

This sum deducted from the amount of the receipts of the past year, added to the balance of the previous year, leaves a balance of $459.69 in the treasury, on the 20th of December, 1854, (at which time I made my annual report to the Comptroller of the State, and sent a copy of the same to the Secretary of the State Agricultural Society.) This amount is carried forward into new account of the present year. At that date there remained unclaimed $22 of premiums awarded at the last fair, of which I have since paid $11, leaving $11 of such premiums unclaimed.

In reviewing the balances carried forward from time to time to the credit of the Society for the last five years, I find that in 1850 a balance of $18 was left in the treasury; in 1851, $156.66; in 1852, $330.90; in 1853, $344.01; and in 1854, $459.69—being a gradual increase of $137.66 in the year 1851, $175.24 in 1852, $13.11 in 1853, and $115.68 in 1854.

I find also that there has been an increase of about $100 per year in the premium list. That of 1851 amounted to $266; that of 1852 to $301; that of 1853 to $443; and that of 1854 to $558.

With the increase of premiums there has been a corresponding increase in the *receipts*, except in the year 1853.

In 1852 the *receipts* of the fair were $639.26. The subscription by the citizens of Auburn amounted to $90, and the amount received from the State was $151; amounting in all, from all sources, to $880.

In 1853 the receipts of the fair were $349; the subscription by the citzens of Springport amounted to $80, and the amount re-

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ceived from the State was $151; amounting from all sources, to $580.

I would here remark, that the expenses of the fair in 1853 were in part borne by the citizens of Springport and its vicinity, in consideration of the fair being held at that place, and do not appear upon the records, or in the accounts of the society, nor have I had means of ascertaining the amount of such expenses, so as to state such amount at this time.

In the year 1854 the receipts of the fair were $934; the amount of the subscription paid by the citizens of Auburn was $116, and the amount received from the State was $151, and from other sources $66.00, amounting in all, from all sources, to $1,267.90.

With the increase of the amounts of our premium lists and receipts, there has been also an increase of *expenses* consequent upon the greater facilities afforded for the increasing requirements of the society. The increased expenses of the past year have been mainly in the cost of enclosing a larger quantity of land for the fair (nearly double the quantity heretofore enclosed), and in the more extensive preparations made for the fair than formerly, in anticipation of a more general attendance and more extensive exhibition. I have compared the other expenses of the past year with those of former years, and find that they do not vary materially from the amounts heretofore paid for similar purposes. For instance, the amount paid for the use of land in 1852 was $25; in 1853 it was furnished by the town of Springport; in 1854 it was $25. The amount paid for police, marshals, and gate tenders in 1852, was $41; in 1853, $42; and in 1854, $44. The amount paid for hay in 1852 was $27.21; in 1853 it was furnished by the town of Springport; and in 1854 it was $16.88. The amount paid for clerk hire in 1852 was $19; in 1853, $21; and in 1854, $20. The amount expended for printing in 1852 was $31.87; in 1853, $41.53; and in 1854, $59.38.

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The amount paid for postages, materials, &c., in 1852, was $23; in 1853, $21; and in 1854, $16.85.

The expenses of the dance, or festival, has no precedent. They amounted to $39, and the receipts exceeded the expenditures $9.

With the experience of the past, and the indications for the future, I think our expenses may in some respects be diminished, and our receipts increased. With the present good feeling existing among our members, and the increasing interest manifested throughout the county in the objects of the Society, there is no reason why we may not go on prospering and to prosper, until we attain a position second to no other society of the kind in the State.

H. H. BOSTWICK, *Treasurer.*

RECAPITULATION.

Amount of funds in the treasury Dec. 20th, 1853, or Jan. 12th, 1854,.....	$344 01
Amount received from various sources, for memberships, subscriptions, &c.,.....	130 00
Amount of receipts on fair ground,.....	934 00
Amount received from other sources,.....	52 90
Amount received from the State,.....	151 00
	$1,611 91

Amount expended on account of premiums for year 1854,.	$545 00
Amount paid for expenses,.....	607 22
Amount to balance carried forward to new account, .	459 69
	$1,611 91

H. H. BOSTWICK, *Treasurer.*

Officers for 1855.—President, Abram Burleu, Springport; Corresponding Secretary, J. R. Page, Sennett; Recording Secretary, J. B. Dill, Auburn; Treasurer, H. H. Bostwick, Auburn.

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PRODUCTS SHIPPED FROM AUBURN BY RAILROAD, 1854.

There has been brought in this city, from November 1, 1854, to April 1, 1855, the following property, and transhipped by railroad to New-York and Boston markets, all of which is the product of Cayuga county: 5,800 dressed hogs, weighing 1,218,000 lbs., at $6 per cwt., amounting to $73,080, in the whole weighing 609 tons of pork; 1,680 live hogs have been shipped, also 3,136 head of fat cattle, and some 300 now feeding, yet to go; 10,200 head of sheep; 166 horses; butter, 202,250 lbs.; 60 tons of poultry. The whole amount of cash paid to our farmers for the various products named above, which have gone to eastern markets by railroad during the winter season, can not be less than $350,000.

J. B. DILL.

CHAUTAUQUE.

MAYVILLE, *Dec.*, 1854.

Hon. B P. JOHNSON.

Dear Sir,—You will excuse me for exceeding simple answers to your circular, and going much into details as to the rise, progress and history of our county.

The county of Chautauque embraces the western portion of the State, being bounded on the south and west by Pennsylvania, on the north and northwest by Lake Erie, and on the east by Cattaraugus and Erie counties; its southern boundary being 36 miles, its western 22, its northern and eastern each about forty miles, giving us an area of about six hundred and fifty thousand acres, embraced in twenty-five towns.

The county is a portion of what is known as the "Holland Purchase," and was surveyed into ranges, townships and lots about fifty years since. The first settlements were made in 1801, when the best lands in the county were held at $2.50 per acre. In the course of a few years, settlements were made in various parts of the county, and mills were soon after erected. Up to 1804 the whole county belonged to the town of Batavia, and our citizens were obliged to go about 100 miles to town meetings, and for the transaction of town business. During that year, what is now the county of Chautauque, was erected into a town to be known as the town of Chautauque. The first general election

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was held in 1807, when the town gave 41 votes for Daniel D. Tompkins, and 28 for Morgan Lewis, for Governor. The county of Chautauque was set off from Genesee in 1808. The first store was opened in 1808, and the next year the first regular practising physician cast his lot among us, and he was followed in 1810 by a lawyer.

The county of Chautauque derives its name from a lake which lies very near its center, and which is 18 miles in length, and from one to three miles in breadth, navigable for steamboats, and is the purest of water, thus affording some of the finest fish taken in the State. There are also other small lakes within our borders, all of pure and wholesome water.

That portion of the county bordering on Lake Erie, from two to six miles in width, and also on the small lakes and principal water courses, is a rich alluvial soil, formerly covered with a heavy growth of beach, maple, chesnut, oak, ash, whitewood, and cucumber timber, and much of it, especially on the wet portions, interspersed with hemlock, and all well adapted to raising of grain and fruits. The upland portions of the county are not so well adapted to grain, but are unequalled by any lands in the State for grazing purposes.

From Lake Erie, the land rises gradually for from two to six miles, and then, for from one to three miles, rises hill above hill until it attains an elevation of from 800 to 1,200 feet. Here the rolling table lands, drained by the tributaries of the Allegany, set in—the greater part of the county thus sloping to the south. Chautauque lake, though but seven miles from Lake Erie, is 726 feet above it; it is nearly 1,300 feet above the ocean. There is no part of our county which may be denominated mountainous, and but very little of waste lands among us.

Though grain is produced in considerable quantities, especially in the northern towns of our county, yet dairying may be said to be the chief occupation of our farmers, and is largely on the increase. Owing to the drouth of the present season, there has been probably no increase of this product as compared with last

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year. Some of our practical men think the quantity has fallen off a quarter, owing to this cause.

In 1850, there were 34,358 milch cows in the county, from the milk of which was manufactured 2,674,780 lbs. of butter, and 2,227,740 lbs. of cheese. The number of cows will not fall short of 50,000 at the present time, and by reason of the improvements in stock and manufacturing, the quantity manufactured per cow will fully equal that of 1850, notwithstanding the dry season. The quantity of land devoted to this particular branch of farming, I am unable to estimate. The butter and cheese are principally bought up at the places where manufactured, and are forwarded to the New-York market by railroad, from Westfield, Dunkirk, and Forestville, at about $10 per ton.

The raising of cattle, horses, and sheep, is receiving considerable attention in our county, there having been the following numbers in the county in 1850:

Milch cows,	34,358
Working oxen,	6,043
Other cattle,	34,497
Horses,	10,278
Sheep,	137,620
Swine,	17,912

Owing to the low price which wool has brought for a few years past, the number of sheep did not increase for a time, but there is a very growing interest in that branch the past and present year. Mr. John D. Patterson, of our county, has large flocks of French and Spanish Merino and Saxony sheep, some of them imported by him, while other enterprising woolgrowers have importations of coarse-wool and other grades of sheep. Much pains is also being devoted to the improvement of horses, many fine specimens of which are now owned among us.

At an early day the Holland company imported a Durham bull, and presented him to the cattle-growers of our county. The blood of this bull may be traced in almost every animal reared in the county, so that we may be said to have but very few purely

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native cattle. During the past ten years much effort has been made to excel in cattle, and the result is a very marked improvement, and the introduction of the Durham, Devonshire, and Herefore cattle among us. Col. H. A. Prendegast has imported one of the finest Durham bulls in the State, and has a herd of as fine blooded cattle as can be found, while others of our citizens fall but little, if any, behind him. The Durham stock are thought to lack hardiness for our climate, especially on the hills, but when mixed with the natives, and acclimated, they are more generally preferred.

Probably about 200,000 acres of our county are still in woods, but this is continually wearing away, and the quantity of improved land is thus gradually being increased. In 1850, there were raised of other products than those of the dairy, the following:

Wheat, bush.,	186,317
Corn, "	516,099
Rye, "	2,532
Oats, "	641,866
Barley, "	24,904
Buckwheat, bush.,	10,889
Grass seed, "	2,218
Flax seed, "	1,511
Potatoes, "	323,462
Peas and beans, bush.,	11,526
Wool, lbs.,	375,213
Hay, tons,	128,752
Hops, lbs.,	8,215
Flax, "	15,053
Maple sugar, lbs.,	167,653
Molasses, gallons,	206
Honey and wax, lbs.,	39,379
Value of home manufactures,	$46,032
animals slaughtered,	$280,237

Owing to the completion of the N. Y. and Erie railroad to Dunkirk, and the building of the Buffalo and State Line road, and various other causes, farm lands have very materially advanced

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in value during the past five years. The assessment rolls of the county for 1849, footed but $5,540,022, while those of the present are $13,467,594. The value of the real estate, as estimated by the marshals in taking the census of 1850, was $11,980,810, and taking the assessed valuation, by the same rule of valuation, the real estate would exhibit a present value of $17,208,864, which is not far from the real rise of the value of the real estate of our county.

There is but little attention paid to science in the cultivation of our farm lands, and but little draining has been done. The drained lands have stood the drouth much better than the undrained.

Corn has produced well, especially in the southern part of the county. Potatoes are fully equal to any crop since the blight began with us. Oats are very short, yet those raised are of very excellent quality. Wheat and other grains, and grass, 25 to 30 per cent. short of an average yield, owing to the drouth.

The agricultural society of our county has had an existence of some eighteen years, though it has not prospered much of that time. For a few years past there has been a growing interest on the subject of agriculture, and our society is prospering. The annual meeting for the present year was held at Mayville, and the attendance of our citizens, as well as the display of horses, stock, sheep, swine, and poultry, was beyond that of any previous meeting. The exhibition tent, which is 50 by 100 feet, was filled to its utmost capacity during the second day of the fair.

The society had offered premiums to the amount of $496.50, and 55 volumes of the Transactions of the State Society, and made awards to the amount of $417.75, and 42 volumes of the Transactions.

There were 93 entries of stock, and 111 head on exhibition; 65 entries of horses, and 91 animals on exhibition; 24 entries of sheep, and 70 head exhibited; and a large amount of swine and poultry. The ground not having been thoroughly wet during the summer, we came well nigh abandoning the plowing match. It

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was appointed for 8 o'clock of the second day of the fair, and at the appointed hour six teams were present, and fully 3,000 of our citizens witnessed the work. With all the disadvantages under which the plowmen labored, the work was done up in most admirable order, and all were highly pleased with the display.

The receipts of the society for the year have been as follows:

From the State,	$143 00
From memberships,	263 00
Admissions to tent,	190 38
	$596 38

These funds have been expended as follows:

Premiums awarded,	$417 75
Building tent, pens, &c.,	98 56
Printing and advertising,	58 75
Bills and premiums of 1853,	15 00
Sundry small bills,	6 32
Total,	$596 38

The next annual fair will be held at Westfield.

Officers for 1855.—Hon. Geo W. Patterson, of Westfield, President; Charles Chadwick, of Westfield, Secretary; William Johnston, of Westfield, Treasurer; and twenty-five Vice Presidents.

All of which is respectfully submitted.

JOHN F. PHELPS, *Secretary.*

MR. CYRUS SHERWOOD.—PRODUCTS.

Mayville, Nov. 23, 1854.

B. P. JOHNSON, Esq.—Your circular of October 23d, was received in due time. I should have replied to your inquiries at an earlier period, but preferred waiting until after the meeting of the board of supervisors of this county, that I could consult with them in regard to the subject of your inquiries. By the courtesy of the board, I have had the desired interview. They are most of them practical farmers, and all of them gentlemen who take a

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deep interest in the welfare of agriculture. The concurrent opinion, after hearing the views of the members from different parts of the county, appears to be as follows. The growing of wheat is chiefly confined to the towns bordering on Lake Erie and the Chautauque lake. Those towns produce wheat unsurpassed in quality, but not of remarkable great yield per acre. The average crop the present year is estimated at twelve bushels per acre. There has been no depredation by the fly.

Indian corn, in the towns north of the ridge bordering on Lake Erie, has suffered very much from drouth, and is estimated not to exceed twenty bushels per acre, although in ordinary seasons no part of the State exceeds those towns in the growth of corn. In the towns south of the ridge, corn has not been injured so extensively by drouth. It is estimated at thirty-five bushels per acre. Oats have suffered very much from drouth throughout the county; probably will not amount to half the usual crop. Rye, barley, and buckwheat are but little raised in this county, and like all other crops, have been injured by drouth. Hay is estimated at a ton per acre. The prospect of the potato crop, as late as the first of September, appeared to be almost an entire failure; but after that time occasional showers resuscitated them, and the crop has far exceeded our expectations. It will be equal to any crop within the last five years. Peas, beans, and flax are but little raised. Fruit is somewhat extensively raised, considerable exported to distant markets. The crop the present year about an average one.

You are aware that Chautauque is not a great grain growing county; her soil generally better adapted to grazing purposes, the farmers at present give much att.ntion to dairy purposes. I think it the opinion that drained lands have been less affected with drouth than undrained. The state of farming is very much improving in the county.

The diminution of crops by drouth is estimated at *thirty* per cent.

Yours, respectfully,

CYRUS SHERWOOD.

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CHEMUNG COUNTY.

In compliance with the statute I herewith transmit the annual report of the Chemung County Agricultural Society.

It is with pleasure that I can record a healthy and growing interest throughout our county in the prosperity and usefulness of our society. Our farmers and mechanics especially are more and more appreciating the benefits growing out of our annual fairs; for but few can behold the best productions of a county collected before them without being inspired with a laudable emulation to equal if not exceed them; and the opportunity they afford for mutual consultation, the thoughts suggested and benefits derived by discussions upon the best modes of cultivation, the best seeds and fruits, breeds of horses and cattle, &c., cannot but produce the most beneficial results.

Our annual fair was held at the village of Horseheads, Oct. 10th and 11th The exhibition of horses, cattle, sheep, and swine, was better than at any previous fair. The show rooms were well filled with a choice selection of fruits, vegetables, paintings, needle-work, daguerreotypes, engravings, &c. The show of stallions deserves more than a passing notice, for it is seldom that we behold better specimens of the well proportioned horse. "Young Factor," owned by Anson Holmes, of Southport, received the first premium; "Eclipse," owned by H. Shriver, of Bigflat, the second. The show of cattle exhibited a decided improvement not only in quality, but in breeds. A four year old Durham bull owned by J. Livesay, of Bigflats, took the 1st premium. He is a noble specimen of his kind, as were also those of A. S. Diven, of Elmira, and H. J. Bentley, of Veteran. The specimens of sheep were good; they consisted of Merinos, South Downs, Leicestershire, and mixed bloods. We are glad to notice a commendable zeal among our farmers for improving and obtaining the approved breeds of sheep, to the raising of which a portion of our county is well adapted.

The butter department was occupied by some superior specimens, and which fully maintain the enviable reputation which

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Chemung has attained among the butter-making counties of the State. The grain crops have been lighter by about one-quarter than usual. Wheat, buckwheat, and oats have suffered most, although the corn crop in many localities was less than usual. There were several competitors for the premiums on corn, as well as other grains.

Below are the number of bushels per acre raised by a part of them, together with statements of the manner of cultivation, which were accompanied with affidavits of measurements.

Corn.—Matthew Starring, of Horseheads, 247 bushels of ears per acre; planted May 18th; cultivated and hoed once; plowed and hoed once; no other manure but one dressing of compost, composed of plaster, ashes, and lime. Soil black vegetable mold.

Charles Sayre, of Horseheads, 173½ bushels of ears per acre.

J. Livesay, of Bigflat, 160 bushels of ears per acre. The land two years previous to planting, was in clover; plowed in the fall of 1853, draged once, and cultivated once with wheel cultivator, May 15th and 16th; hills planted 3½ feet apart on the 17th; dressed with a compost consisting of 16-21 wood ashes, 4-21 plaster, 1-21 salt; cultivated twice, and plowed once; harvested Sept. 17th; soil, clay loam.

Oats.—Wm. Johnson, of Bigflat, 60 bushels per acre; sowed May 6th, three bushels per acre; land, oat stubble and corn ground; plowed in the fall.

Potatoes.—M. Staring, of Horseheads, 216 bushels per half acre; planted fore part of May; plowed and hoed twice; no manure; soil, black vegetable mold.

J. Livesay, of Bigflat, 209 bushels per half acre; land, clover two years previous; plowed in the fall, draged once and cultivated once with wheel cultivator; planted 3½ feet apart, May 15th and 16th; dressed with a compost of wood ashes, 16 parts, plaster, 4 parts, salt, 1 part; soil, clay loam.

Plowing match.—The plowing match which came off on the forenoon of the second day, was of unusual interest. A large

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concourse of people assembled to witness it, and seldom, if ever, have we witnessed a better and more successful exhibition of the plowman's skill.

To the ladies we are much indebted for the beautiful appearance of our show rooms, for there were many beautiful specimens of needle-work, shell-work, cut flowers, and paintings, which they alone know how to execute with such taste and skill.

The annual address was delivered by Prof. Evans, of Madison co. It was listened to by a large and attentive audience, who seemed to highly appreciate the importance of the subject. I regret that I am unable to transmit with this, a copy for publication.

After the address, and the announcement of the premiums, the society proceeded to the election of officers for the ensuing year, the following were elected: William H. Van Duser, of Horseheads, President; John Ross, of Horseheads, Treasurer; DeWitt C. Curtis, of Horseheads, Rec. Secretary; C. M. Widrig, of Elmira, Cor. Secretary; Hon. Samuel Manier, of Bigflat, A. J. Wynkoop, of Chemung, Geo. B Hall, of Cayuta, Hon. Wm. T. Jackson, of Catherine, David W. Frost, of Dix, A. S. Diven, of Elmira, Nelson Colgrove, of Catlin, John A. McKee, of Erin, Wm. H. Banks, of Veteran, Vice Presidents. An executive committee, consisting of one from each town, was also chosen.

DEWITT C. CURTIS, *Rec. Sec'y.*

CHEMUNG COUNTY CROPS.—FROM C. HULETT, HORSEHEADS.

B. P. JOHNSON, Esq.

Dear Sir,—In relation to the several interrogatories sent me in regard to agriculture, and the average yield per acre, &c, from the best information I can obtain, I would say first of wheat, that it would not average over ten bushels per acre; indian corn, say 30 bushels per acre, short one-fifth by drouth; oats, 40 bushels per acre, injured by dry weather one-fifth; barley, 10 bushels per acre, injured by dry weather one-half; Rye, not cultivated to any

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extent; buckwheat, about half a crop, say ten bushels per acre; hay, one ton per acre, one-fifth less than a usual crop, in consequence of drouth; potatoes, rather more than half a crop, 100 bushels per acre; peas, beans, and flax, not grown enough in our county to make a calculation upon; fruits, an abundant yield, but of rather an inferior quality compared with other seasons, when we have more and oftener the earlier and latter rain. The wheat crop of this county was badly injured by the open winter, and that, that was not winter killed, was nearly or half destroyed by the fly. In regard to farming generally, I am happy to say that there appears to be a healthy, vigorous improvement going on in our farming community generally, both in the preparation of the soil and a proper rotation of crops. In regard to stock, our county fair last fall was much better attended than it ever has been before, and the stock exhibited far superior. Butter is one of the staple productions of our county, and notwithstanding the dry season, I think the product of the dairy will not compare unfavorably either in quantity or quality with seasons past.

CHENANGO.

NORWICH, *Dec.* 18, 1854.

Our annual county fair was held at Norwich on the 27th and 28th of Sept., and with a better attendance, better feeling, and more interest than any previous fair. The address was delivered by the Hon. Horace Greeley, and as you might expect, it was a practical, interesting address, one which will be heeded by and useful to the farmers of this county.

There was a great display of cattle; some of the finest in the State. Also a very good collection of horses, sheep, swine, and poultry; vegetables were fine, especially potatoes, there never

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was exhibited finer specimens. Most kinds of our products were somewhat injured by the long and severe drouth. The soil in Chenango county will stand the drouth better than most counties in the State; by this means we were less injured than most places by the late severe drouth. We are much encouraged from year to year; our society increases steadily in its receipts and interest taken by the farmers.

Our receipts this year are as follows:

Balance in treasurer's hands 1st Jan., 1854,.....	$70 17
From the State,.....	122 00
Badges sold,.....	410 50
Entrance fee at gates,.....	498 15
Citizens of Norwich,.....	205 00
	$1,305 82

Expenditures:

Paid for premiums, labor, &c., per 265 vouchers,.....	$987 90
Balance in treasurer's hands, Dec. 16, 1854,.....	317 92
	$1,305 82

There was a good display of fruit; there is considerable attention being paid to improving our fruit, with success. Our mechanical department did honor to the various trades. Good specimens of ladies' fancy work were on hand. Better butter is not seen anywhere than can be seen in Chenango; this is proved by the prices it commands in market. There are many of our dairies that sell readily at home, at twenty-five cents per pound.

I cannot pass unnoticed a splendid pair of fat oxen, exhibited by Whitman Willcox, whose gross weight is over sixty hundred; they are a sight to look at, perfect mammoths.

These annual exhibitions of our farmers and mechanics, serve to encourage and stimulate them to improvements, industry and energy, that otherwise would not be developed perhaps for a long time, if ever.

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Our crops are short this year. Wheat, not much raised; corn, an average crop; oats, short one-half; barley, short one-quarter; potatoes, good, better than usual; hay, short about one-tenth; cheese, short about one-eighth; butter, nearly full amount.

J. WELLS, *Secretary.*

PRODUCTS.

NORWICH, *December* 16, 1854.

B. P. JOHNSON, Esq.:

Dear Sir—Your circular for agricultural information was received a few days since, and I submit the following answers:

1. The chief products of the county are from the dairy—butter and cheese.

2. The business increases, but owing to the drouth, the amount of cheese is at least one-eighth short; butter one-twelfth, but owing to increase of cows, there is as much butter made in the county as last year.

3. The number of acres devoted to this production is probably about 125,000, and on the increase. About 3,000,000 lbs. butter, 1,800,000 lbs. cheese.

4. Of other products of the county, wheat is not much raised; average crop. The same may be said of rye. Corn considerably cultivated, and I think a good average crop. Drouth injured some, and materially benefited other pieces, and, on the whole, a good sound crop. Oats, short crop, say one-half. Potatoes good. Have not been as good since the disease made its appearance. Generally of large size, dry, mealy and sound, yielding from 100 to 200 bushels per acre. Large quantities have been purchased for the eastern markets at 3s. per bushel. Two years since the potato crop in this county was exceedingly good, owing to the dry season. The year following it was very bad, almost all the potatoes rotted. The season was warm and wet, causing a rust on the vines which diseased the potato. This season has been very dry—no rust, and potatoes in this county hardly ever better. Now does this not show that the disease in the potato has not been caused by any insect, as supposed by some, but by *rust*,

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which kills the vine, stops the growth of the potato, and blights it; has the same effect as warm wet, sultry weather has on wheat. All dry seasons are, as a general thing, favorable for insects, and they are the most troublesome in dry weather. I am entirely satisfied that the *same causes* affect the potato top as do the wheat, and blights and destroys them both alike. The hay crop is not an average one; about one-tenth short; one ton per acre an average. Other crops not much raised; only on a limited scale.

5. There is not much increase in farm lands, and no decrease.

6. The number of neat cattle is on the increase. There are various opinions about the different breeds of cattle. I very much doubt whether there has ever been any better breed of cattle, either for beef or milking, than the native red cattle. It is the keeping that makes the cattle.

7. There is not much attention paid to scientific farming. Farmers are beginning to look into the principle a little.

8. Drainage begins to receive some attention, but is not extensively practiced. In some cases its advantages are obvious, and it pays well.

9. Farms have increased in value for the last few years twenty-five per cent.

10. The products of the county are marketed on the Chenango canal at different points—Sherburne, Norwich, Oxford, and Greene, and shipped to New-York principally; some to Philadelphia and Boston. Butter and cheese, the principal products, have sold this season, delivered on the canal at the various points mentioned above, as follows: Butter has netted the farmer here from 20 cts. to 25 cts. per lb. Average 22 cts. Cheese 8 cts. to 10 cents. Average 9 cts. Cost of transportation to New-York, 2 s. per hundred pounds.

Yours with respect,
JONATHAN WELLS,
Secretary and Treasurer Chenango Ag. Society.

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CLINTON.

PLATTSBURG, *March* 5, 1855.

B. P. JOHNSON, Esq., *Corresponding Secretary:*

My Dear Sir—It gives me pleasure to inform you that our county society is provided with fair grounds and buildings, probably superior to those of any county society in the State. We have permission from the Hon. Secretary of War to use a portion of the U. S. barracks and enclosed parade grounds, by giving security against injury.

We have adopted a premium list of $759, and fixed upon the 18th and 19th September for holding our annual fair, and we hope to give a good account of ourselves this year, and see a better spirit of improvement and competition exhibited than we have ever yet had. Last year you are aware that we omitted holding a fair, and did not draw our money from the State.

We have adopted a rule in the payment of prizes to promote the diffusion of agricultural and mechanical information in the county. Every person receiving awards amounting in the aggregate to $2 and over, shall receive agricultural, horticultural, or mechanical publications, or the "Transactions of the New-Yor State Agricultural Society," or "American Institute," as they shall select, in proportion as stated below:

Awards amounting to $2 and over shall receive publications to the amount of.....	$0 50
Awards amounting to $4 and over shall receive publications to the amount of.....	2 00
Awards amounting to $6 and over shall receive publications to the amount of.....	3 00
Awards amounting to $8 and over shall receive publications to the amount of.....	4 00

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I regret that our society was not represented at the annual meeting of the State Society. Our delegate left Albany before he had notice of his appointment.

I remain, dear sir, yours very truly,

JOHN W. BAILEY,

President of Clinton County Agricultural Society.

Officers for 1855.—President, John W. Bailey, Plattsburg; Secretary, John L. Stetson, Plattsburg; Vice-Presidents, Peter Keese, Keeseville; Thomas Crook, East Beekmantown; John Nichols, Plattsburg; Isaac Smith, Plattsburg; Stephen K. Smith, Peru; J. K. Lapham, Peru; L. G. Whitney, Mooers' Forks; A. J. Moses, Champlain; John W. Hubbell, Chazy; Abram P. Allen, Saranac; Silas M. Taylor, Schuyler Falls.

PLATTSBURGH, *November* 8, 1854.

B. P. JOHNSON, Esq.:

My Dear Sir—I hand you herewith attached, answers to your circular of the 23d October. After consulting with well-informed farmers in different parts of the county, I have made up an estimate which I think does not vary much from the fact. You will observe that the average of all crops, (except hay,) are put at a pretty low figure. I know of one crop of oats in this town yielding 60 bushels per acre, but such cases are very rare. Some crops of corn have yielded fifty bushels, and wheat twenty-four to thirty, but these are exceptions. The buckwheat crop has suffered more, probably, than any other, being but little more than a quarter crop. Potatoes are less than half a crop, but of excellent quality. I have not seen or heard of a rotten potato this fall. Rye is mostly grown on the light sandy soils.

Very truly your friend,

JOHN W. BAILEY.

Estimated average per acre of crops in Clinton Co., for the year 1854.

Wheat, ...	8	bushels.	The usual average is		15	bushels.
Indian corn, ...	12	do	do	do	25	do
Oats, ...	20	do	do	do	35	do
Barley, ...	15	do	do	do	30	do

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Rye, ...	10 bushels.	The usual average is	15 bushels.
Buckwheat, ...	6 do	do	do	20 do
Hay, ...	1¼ tons	do	do	1¼ tons.
Potatoes, ...	60 bushels.	do	do	150 bushels.
Peas and beans, .	10 do	do	do	20 do

Fruit—Plums and cherries almost a total failure.

Apples, about half an average crop.

Pears, a good average yield.

No estimate can be made of the yield of fruit per acre.

The diminution of crops by drouth has been fully one half, except hay, which has been a fair average.

Winter wheat that was not sowed early suffered considerably by the fly. Early sown winter and spring wheat was less affected from this cause. The crop diminished by the fly about five or six per cent. Winter wheat is but little grown in this county.

Drained lands have been less affected by the drouth than undrained.

The state of farming in this county is a fair average of this part of the State, *and steadily improving.*

J. W. BAILEY.

CHAMPLAIN VALLEY HORTICULTURAL SOCIETY.

At its late meeting, the following was the report on fruits, made by Mr. Battey, the chairman of the fruit commitee:

To the Champlain Valley Horticultural Society:

The society not having held any exhibitions during the past year, the undersigned has had but little opportunity for the examination of fruits grown in our valley, except such as have fruited in the specimen grounds here; nor has he had any opportunity for consultation with other members of the fruit committee. He is therefore unable to present, at this time, a report in behalf of the committee; and instead, begs leave to submit the following notes on some varieties of recent introduction, as they have now proved on bearing, for one or more years, at this establishment.

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APPLES.

Tetofsky—This new Russian variety appears likely to prove valuable. Fruit of medium size, fair, handsome, and of good quality. Tree hardy, and an early and abundant bearer. Ripens at the end of summer.

Summer Rose—Handsome and good.

Summer Sweet Paradise—Of large size and fine quality. Ripens here the first month in autumn. Valuable.

Sopsavine—Size above medium; quality very good; tree hardy and very productive; immediately succeeds Early harvest; valuable; better here than farther south.

Early Red Margaret—Small, and not as good as sopsavine, which ripens here at the same time

Duchess of Oldenburgh—Large, fair, and handsome; fine for cooking; hardy and productive.

Northern Sweet—Still maintains its high character as best among the best of its class and season.

Munson Sweeting—This variety, introduced by J. Storrs, of Marathon, New-York, was once pronounced by P. Barry identical with the Northern sweet; and subsequently, in his fruit garden, he described the two as being much alike. The Munson has now fruited here, and proves to be a variety of good size, fine appearance, and fair quality, but quite distinct from the Northern sweet, not bearing the least resemblance to it in the appearance or quality of the fruit, or the habit or growth of the tree. The Northern sweet is by far the better fruit.

Jersey Sweet—Quality very good; productive and valuable.

Porter—One of the best; tree a moderate grower.

Hawthornden—A fine cooking apple; the tree is remarkable for its early and abundant bearing, and for making naturally a fine low or dwarf standard on the free stock.

William's Favorite—Has not yet succeeded so well here as in some other places.

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Red Astrachan—Handsome and good; tree very hardy and productive.

Benoni—Medium size, beautiful, and of fine quality.

Cole—Handsome, but inferior in quality.

American Golden Russet—Quality fine, but the fruit is apt to be spotted.

Jonathan—Handsome and excellent.

Domine—Quality very good; tree very vigorous and productive.

Minister—In quality not more than good; tree hardy, and a great bearer.

Peck's Pleasant—In quality one of the best; the fruit is rather apt to be spotted.

Ladies' Sweeting—Excellent; but it requires here a long and favorable season to attain its highest perfection.

PEARS.

Dearborn's Seedling—Quite small; productive and very good. Tested only on the quince.

Rostiezer—Nearly medium in size, and of the finest quality. On quince.

Andrews—Size large; quality very fine. Tested on the quince stock.

Epine Dumas—Productive and excellent; promises well. On quince.

Duchess d'Orleans (of the English)—Size medium; quality very good. On quince.

Frederick of Wurtemburg—Size large; quality very fine; an early and abundant bearer. On the pear stock.

Jalousie de Fontenay—Rather large; quality very good. On the pear stock.

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Johonnot—Medium in size; in quality, best. On pear stock.

Louise Bonne of Jersey—This fine variety succeeds well here, and is annually improving as the trees acquire age. The tree is a rapid and handsome grower, and an early and abundant bearer, both on the pear and quince stocks. The fruit is of large size, and very handsome; in quality it is very good, and often best. With me it succeeds finely on the pear stock, though it has had the reputation of doing much better in many places on the quince. I have obtained more good fruit even on the pear stock, from trees of this variety, than from an equal number of trees of the same age, of any other sort. For extensive orchard cultivation in this valley, I esteem this one of the best varieties we have.

Missisquoi—As fruited on the quince, worthless.

Onondaga—Large, handsome and good. Tested only on the quince.

Platt—This fine native variety has not yet fruited in my collection; but as fruited in the grounds of the originator, it maintains fully its reputation. I regard it as one of the very best sorts for this region, which has yet been proved here.

Seckel—Of slow growth; but hardy, productive, and of the highest excellence. Does well here both on the pear and quince.

Summer Bonchretien—Often good, but variable. On the pear stock.

Surpasse Virgalieu—Fully first rate in all respects. On quince.

Van Mons' Leon le Clerc—A magnificent pear, of superior quality, and of high promise for this locality. Tested here only on the pear stock.

Verte Longue—A juicy and refreshing pear of fair quality; very productive. Tested here only on the quince.

PLUMS.

Jefferson—Large, handsome, and excellent; one of the very best.

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Bleeker's Gage—Excellent.

Columbia—Large, handsome, and good.

Dominie Dull—Good size and fine quality.

Drap d'Or—Very good.

Frost Gage—Hardly as good here as farther south.

Golden Gage (of Rivers)—Medium or small size; quality good.

Imperial Ottoman—Very good.

Lombard—Quality good; very hardy and productive; an excellent market sort.

Monroe—Has proved worthless here.

Purple Favorite—Excellent.

Red Diaper—Very fine.

Reine Claude de Bevay—Large size, handsome, and of excellent quality; one of the best.

CHERRIES.

Bigarreau—Excellent.

Kirtland's Mary—Very fine.

Kentish—Productive and good.

Large English Morello—Fine for cooking.

Plumstone Morello—Very fine.

Late Duke—Very good.

Du Nord Nouvelle—Rather acid; late.

May Duke—Excellent.

Belle Magnifique—Very fine.

Carnation—Good.

Holland Bigarreau—One of the best of the hard-fleshed cherries.

Robert's Red Heart—Very good.

Jeffrey's Duke—Fine.

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HARDY GRAPES.

Isabella—Has succeeded finely the past season, which was here unusually favorable to the perfection of the grape crop.

Diana—This is the finest-flavored American grape I have yet fruited; ripens here a fortnight earlier than the Isabella; it is difficult of propagation, and not very productive, yet it may be regarded as a decided acquisition.

Clinton—This variety was better in quality than I have before had it, though not yet equal to the McNeil; nor is it as productive, though it is less liable to mildew.

McNeil—This variety maintains its character as the most perfectly hardy and reliable grape I have yet tested.

Sherman—A new variety, and another chance seedling from the Lyman, fully equal to the McNeil, and a fortnight earlier; I consider it an important acquisition for this valley.

Cowan—This appears to be nothing more or less than the Lyman, so long and well-known at Burlington and vicinity under the latter name, which is the correct one.

Strawberry Grape—Inferior to the Lyman or either of its seedlings above named.

Coon—Ditto.

Fitchburg Native White (of Massachusetts), and *Early Purple*, are all distinctly *Fox* grapes, and unworthy of cultivation.

Elsinburg—Early, and of fair quality; but too small to find favor with most of our cultivators.

Respectfully submitted,

J. BATTEY,

Chairman of the Standing Fruit Committee of the Champlain Horticultural Society.

UNION NURSERIES, KEESEVILLE, N. Y.,
February 20, 1854.

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COLUMBIA.

The annual fair and cattle show of the Columbia County Agricultural Society, was held on the 29th and 30th days of September, 1854, at Chatham Four Corners. The attendance was larger than at any previous fair held in this county.

The exhibition;of cattle, horses, and other animals equalled if it did not exceed that of any previous year.

The show of fruit and vegetables was very good, considering the unusually dry season. The display of domestic manufactured articles and paintings was very fine indeed.

The first day was devoted to the entering and arranging of stock and articles for competition for premiums, and examined by the different committees.

The annual address was delivered to a large assemblage of farmers and farmers' sons and daughters, assembled under the large tent, upon the fair ground, by Charles L. Beale, Esq., of Kinderhook.

The plowing match came off in the forenoon of the second day, was witnessed by many spectators, and was contested with great spirit. In the afternoon the reports of committees were read, and premiums awarded.

The financial condition is as follows:

1854.		
Sept. 29.	To amount of voluntary subscriptions received from sundry persons,.....	$353 00
	Cash on hand previous to this 29th, ...	73 10
		$426 10
	The amount due from State, not received at this date, ...	133 00
		$559 10

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CONTRA.

Sept. 30.	By cash paid for premiums, as per vouchers,	$367 00
	Miscellaneous, ...	58 18
	Lost in hands of Henry C. Miller, late Treasurer, ...	92 00
		$517 18

At the annual meeting of the society, in September last, the following officers were elected for the ensuing year: President, Elisha W. Bushnell, of Hillsdale; Secretary, F. A. Gifford, of Hudson; Treasurer, H. W. McClellan, Chatham Four Corners; and five Vice-Presidents, and an executive committee of one from each town.

ELISHA W. BUSHNELL, *President.*

Hillsdale, Dec. 22, 1854.

COLUMBIA COUNTY CROPS.

Hon. E. W. Bushnell writes us:

HILLSDALE, *December* 29th, 1854.

B. P. JOHNSON, Esq:

Sir—I have delayed answering your questions with regard to the state of agriculture in this county, partly for the want of time, and partly for the want of reliable information.

The wheat crop the past season was an entire failure in this county. There was more sown in the fall of 1853 than usual, but owing to the open winter and wet spring, and exceedingly dry summer, there were but few fields that would pay for harvesting.

The corn crop is a very short crop, not more than half a crop; 20 bushels per acre.

The oat crop not more than one-third. 15 bushels per acre. Barley but very little raised. Rye was a very good crop considering the dryness of the season; 15 bushels per acre. The diminution by drouth and hard winter about one-fourth.

The buckwheat crop was very short; about one-third crop, Hay crop very good. I think the exceedingly wet spring gave

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meadows a fine start; consequently the hay crop is about an average crop—one and one-half tons per acre.

Potatoes one half crop; 75 bushels per acre. Peas and beans but few raised. Flax none of any consequence. I think the fruit crop was more than an average crop. I have seen the past fall some of the finest apples I ever saw in my life.

The diminution of crops by drouth, in Columbia county, is fully one-half, if not more. The wheat that was left to grow after the hard spring, was so very late that the fly destroyed the most of it.

As for drained lands, I am not able to answer. I think the state of farming in this county is improving. The yield of crops in an average season is increasing very much. The improvement of swamps, bog and low lands, is rapidly on the increase.

CORTLAND.

REPORT OF F. H. HIBBARD, LATE PRESIDENT.

In conformity with the act for the promotion of agriculture, I respectfully report to you the transactions of the Cortland County Agricultural Society for 1854.

The officers of the society met in March, and made out a list of premiums, offering $350, a much larger amount of cash than usual, seventy-five volumes Transactions of State Society, one hundred and twenty agricultural papers, thirty copies of American Institute, diplomas, &c.

The sixteenth annual fair of the society was held on their show grounds, in Homer, Sept. 26th, 27th and 28th, at which time there was a greater attendance by thousands, than ever came out to any previous fair of the society; the display of cattle and mechanical products was truly creditable to the county. The beauty

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of the weather for the three days, aided much to enhance the pleasures of the festival. The first day was devoted to entries of stock, decoration of floral hall, &c.; second day, general exhibition of farming products, and examination by judges; third day, plowing match and public dinner, after which the assembly adjurned to the Presbyterian church, to listen to an able and practical address by A. B. Dickinson, of Steuben; at the conclusion, reports were read and premiums awarded by the viewing committees.

The annual meeting of the society was at Homer, Dec. 26, for the electing of officers, and awarding of premiums on grain and root crops, fat hogs and cattle, also for the best lot of dairy cows, not less than ten.

On grain and roots but little competition. There were three entries for the best lot of cows: first premium awarded to F. H. Hibbard, for his eleven grade Durham cows, from which were made 1,775 pounds of butter, average 181½ pounds to the cow, aside from what was consumed by the family during the season; second premium, to George Miller, lot of thirty-one cows, average 160 pounds; third premium, to George Miller, lot of fifteen cows, which average 156 pounds to the cow.

Joshua Ballard, of Cortlandville, having won the first premium on butter in State and county fairs two years past, offered a special premium of $5 for the best 25 pounds of butter, made at any time during the season, to be shown at the winter meeting; at which time there were several competitors, and the prize won by Lyman Hubbard, of Homer.

This county is truly a dairy one, and already ranks as one of the first in the State; its pasture lands are well adapted to butter making, being generally rolling or hilly, and abounding with springs of pure soft water, which is an indispensable article in the production of good dairy butter. I find, on inquiry of our dealers in butter in this town (Cortlandville), that they have

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bought and shipped to New-York, Boston, and Louisville, Ky., markets, 670 tons of butter, at a price ranging from eighteen to twenty-four cents per pound.

Officers for 1855.—Israel Boies,* Homer, President; Moses Kinney, Truxton, Isaac Hawley, Homer, Stephen D. Freer, Cortlandville, A. L. Chamberlain, Cortlandville, Vice Presidents; Henry B. Burr, Homer, Secretary; Amos Rice, Homer, Corresponding Secretary; Morgan L. Webb, Cortlandville, Treasurer. Executive committee: Peter Walrad, Henry S. Randall, Franklin M. Buell, Wm. L. Sherman, Noah Hitchcock, jr., F. H. Hibbard, Lewis L. Merrill, Josiah Stone, Manly Hoblart, Norman Kingman.

Francis H. Hibbard, Esq., *President:*

Sir,—Annexed is statement of the finances of the Cortland County Agricultural Society, for the year 1854:

Balance in treasury, for 1853,		$149 14
Received from 245 annual members, for 1854,		245 00
admissions to fair ground, "		325 38
Horace White, special premium,		25 00
State Treasurer,		75 00
		$819 52
The amount of cash premiums offered for the year is about,	$300 00	
There is due an unpaid balance for buildings on fair grounds, about,	100 00	
		400 00
Estimated balance in treasury for the year,		$419 52

M. L. WEBB, *Treasurer.*

AN ADDRESS DELIVERED BEFORE THE CORTLAND COUNTY AGRICULTURAL SOCIETY, BY HON. A. B. DICKINSON, SEPT. 29, 1854.

Mr. President, Ladies and Gentlemen—I came here on your kind invitation, to deliver your annual agricultural address.

I need not say to you, gentlemen, that I am proud of the opportunity to exchange views with so intelligent and practical farmers as I have had the pleasure of meeting at your fair.

* Resigned, and Geo. I. L. Barber appointed in his place.

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My mission is twofold; it is to learn and try to impart useful information in practical husbandry; and if I shall be one-half as successful in imparting information as I have had opportunity to learn, I shall be more than gratified.

I came here, as is usual, with an address prepared and written for the occasion, but I find it so far behind the times, that is, behind your time, that I have not had the moral courage to submit, even to my best friends, for approval, any portion of an "Old Fogy" paper. I had prepared it, supposing that Cortland county had made about the same progress in practical agriculture as adjoining counties, but I find her far in advance. It is now twenty-six years since I travelled the road parallel, and nearly all the way in sight of the one on which the iron horse brought me to your pleasant village and unequalled show grounds. Hence my misapprehension, and the consequent necessity of dispensing with the address which I had prepared.

And this, I understand, is only your sixteenth anniversary. Have sixteen fairs done so much for Preble? If so, Onondaga could afford to pay $10,000 a year for fairs, to bring Tully, her adjoining town, to as high a state of improvement as your Preble. Some of the adjoining farmers over the line, have caught the breeze, and have their broad productive fields well fenced, with every inch of land well improved, for the purpose for which the God of nature intended it; which gives to those farms a peculiarly good look to my eye; more beautiful than mountain scenery or picturesque hills, which beget in fancy farmers and European travellers so much admiration that they can scarcely stop to look at a fence, the inside of which is literally filled with corn and pumpkins.

I have seen fields on the road which would yield fifty to sixty, and perhaps seventy bushels of the former, and ten wagon loads of the latter, to the acre, which is as much more inviting in appearance to a practical man, as a piece of roast beef with all the fixings, would be to a hungry man, over a daguerreotype likeness of a frozen potato. There is very little, if any better corn land than your valley, if properly cared for. It requires much more labor to raise a bushel of corn here than in Ohio, Indiana, and

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Illinois; yet I do not believe there is any land on the Ohio, Wabash, Mississippi or Missouri, on which there can be raised as much corn to the acre as in this valley, or other places in this State. There, corn is very deceptive. Being a much larger kind, it must be planted farther apart, with less stalks in the hill; and then if there is more than one ear on a stalk, there will be only one good one. It is true the ears will set as high as a man can reach, on stalks as thick as your arm, which make a great show for so little corn.

On this subject I do not speak without some knowledge. I have been interested in large fields of corn, purchased for the purpose of feeding, which leads to an accurate measurement after the corn is cut and put into stouts. By husking one row diagonally through the field, and counting and making the average, you would arrive at the quantity with about as much certainty as with scales. And by this test, I never purchased a field, large or small, that would yield per acre fifty-five bushels, sixty pounds to the bushel, in any of the western States. As it requires so much less labor there than here to raise corn, they can produce it much cheaper. If their ground is well plowed, it can be planted and covered with a shovel plow, thick or thin. It bursts out of the earth, and very soon grows out of the way of the weeds, and will become, if but very little labor is bestowed, something of a crop; while our corn must be planted with great care, at a proper depth, and tended as soon as it is out of the ground, or the weeds will soon smother and destroy it. It is the labor which makes our corn and much improves theirs.

Thirty years ago, Cortland was regarded as a cold frosty county, by the inhabitants of the wheat growing counties; and many of the pioneers settled here for the reason that the land is much cheaper than in the wheat growing counties. As they had not the means of purchasing the then higher priced lands, they bought where best they could, as true Yankees, determined to be the cultivators of their own soil, Your soil is not well adapted to the growing of wheat, and you have acted wisely in not trying to make it so. Wherever the grass grows as well as it does here, and is as well cultivated, you can buy everything else and get rich, and at the same time enrich your farms; but you can impo-

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verish the best grass land on earth by mowing or pasturing. The Orange county graziers have very much reduced some of their very best grass lands, in the last fifteen or twenty years, whilst much of their land has been greatly improved, and waste lands been reclaimed. The same system which has reduced theirs, would, if pursued in like manner, impoverish yours. Their former fine fatting lands near the railroad, have been converted into cow pastures, and the very worst kinds of cow pastures, for the milk sold in New-York is so much taken from the soil. Four cows will eat as much as five fatting steers; cows eat from morning until night; the steer eats and lies down, and profits by what he has eaten, and accumulates fat; and the droppings of one fat animal are worth more than those of two poor ones. The cow is used as a kind of distiller and rectifier of grass into milk, which is all sold from the farm, and much of the accumulated soil with it. At least 25 per cent. of some farms has been sold in the shape of milk, in the New-York market. On the pastures of which I speak, cattle were formerly fatted, and the grass had accumulated until the earth was covered with a sod from three to five inches thick, which not only gave sweeter pasture, but much more of it, and more especially in a dry season.

One of the causes why they have exhausted their soil is, that they can hardly believe that a cow eats more than a steer, and have kept or tried to keep the same number. And there is still another reason: they are so anxious for gain, that if they could get $10 or $50 for the milk of a cow through the summer, they would stock up to the last blade; while, on the other hand, if they were fattening, they would not dare stock up to their full, or at least beyond their capacity, for as sure as they did, their cattle would show it, and they would not only knock off the growth, but their cattle would cease to fatten; and instead of bringing ten cents per pound, would only bring seven cents, making a difference of $18 or $20 on a steer in the New-York markets. Not so with making milk; the cow affords some, though the pasture is poor, and she is falling off daily to little else than skin and bones. After she has eaten all the grass she grazes on roots to sustain nature, and a continuation of this will soon reduce this once productive thick

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sod to a very thin one, and a poor pasture. And another reason is, that the keeper of cows never gives his pastures and meadows rest, which is so important, occasionally. This dry season has, or should have taught us a lesson. You may have had a small piece of meadow in the same field with early sown wheat, which you could not pasture last fall. The fall's growth of grass covered the soil with a sort of mat, which protected it from the frost, and from such pieces you have doubtless cut a good crop of hay; from which we may infer that the short crop of grass, the present season, is not at all chargeable to the severe drouth. Short feeding, and the hard-freezing winter, to the unprotected field, must come in for a full share of responsibility.

Dry weather always scares farmers, but wet weather starves them on such soil as yours.

On some soils the grass will not recover from such a severe drouth, while yours will be improved as soon as you have sufficient rain to wet the ground thoroughly. The grass will take a fresh and vigorous start, for the reason that the roots have penetrated the earth much deeper for drink than before, and consequently feed on more, if not better fertilizing qualities of the soil: Plants, like man or beast, procure drink at the most convenient pool. The roots of the pine and oak, which penetrate deep into the earth on dry soils, in swamps where the water stands within one foot of the surface, never go below that point; in short, they have no stem or trunk root, but spread far and wide on the surface. On the sandy soils of Maryland and Virginia, such a drouth would be utter destruction to most of their grasses.

Your soil is unlike theirs in every respect, and requires an entirely different treatment. The trade of farming is altogether more intricate and difficult to learn than any and all others. The house carpenter has his square, line, and gauge to aid him; his draft is before him; the mason, his level and plumbs, and tests the texture of his mortar with as much certainty as the assorter of wool selects the fine from the coarse, by the touch.

He has unerring rules for his guide. To make a good mortar he takes just lime enough to fill the space left vacant in the sand,

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which makes his cement, by which means he is able to fasten one stone to the other to make a solid rock.

The merchant depends upon his practised eye, and the skill by which he judges of the fancy of others; and the lawyer on the authorities he finds in his books, with a quick and keen perception, to arrive at correct conclusions, and to judge of men and things.

But not so with the farmer. Every acre, and I might say every rod of ground varies on each man's farm, to a greater or less extent.

In all the works of creation there are no two things alike; therefore the cultivation of each field is thrown upon his own judgment, to determine for what each piece or parcel is best adapted, and whether deep plowing or subsoiling is best. On those side-hills, I have no doubt subsoiling would very much improve their fertility, while on this gravel bottom, I am not without my doubts of its utility. I should want to experiment before going to much expense in subsoiling these flats, as it would be very likely to injure the soil. On heavy clay or hard-pan land subsoiling works wonders. By letting the subsoil plow follow the common plow in the same furrow, as deep as it can be plowed, and the next fall, by using the subsoil plow, with two shares on the same beam, and throwing the bottom earth on top, to the action of the frost and sun, such land, however well its tillage has heretofore been, will be improved, and if worn out, will be made good—a new farm made out of an old one by turning the other side up.

Plowing is a trade of itself. It has never been my good fortune to hire a man that knew how to plow. Although I employ from forty to fifty hands every year, I never hired a man who had worked on a farm, from whom I could not learn something. I have had a man who understood the mechanical part of plowing, who could take a pair of horses, stick his stakes, and stake out his land so straight, and with such exactness, that when he had finished the dead furrow, it would not vary one inch from the exact line; and yet this man did not know where to begin, or

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which way the field should be plowed—only that he had seen men plow parallel with the road, or at right angles. The first thing for a farmer to note when he commences plowing a field, is to see if there are any wet or springy places, and if so, to commence plowing so as to make his back furrows at the lowest places in the field, and his dead furrows on the dryest and highest land, by which he can draw the water to some convenient ditch on the farm or the roadside. He should plow his land, whether it is diagonal or square, exactly the way by which he can draw the falling water at the slowest possible rate, and have it run. For those who plow in the fall, this is more essential, as the rains are much heavier late in the fall and early in the spring, and ruinous waste is made of farms by washing any portion of the soil away.

This rule should be strictly observed on side hill lands; on flat, gravely bottom, like some of yours here, all that is necessary is the mechanical part; but on equally level clay land, I think the better plan is to always plow the same way, in narrow or wide lands, varying according to the dampness of the soil, rounding the land well up in the middle, with deep dead furrows, which course will give about the same surface, and crops will be made better; and the mowing machine and reaper works well on land tilled in this way, as the wheel carries the machine over at right angles, or lengthwise, doing equally good work. Plowing in the fall is to become more fashionable than formerly, as I regard it as the best and only sure remedy to destroy the wire-worm, which has made and is making sad havock of almost every kind of crops, wholly destroying some. Plowing late in the fall will not kill all, but most of them. In three years, I think, they may be nearly or quite all destroyed, and it is the only remedy I know of to destroy the most mischievous and ruinous of insects the farmer has to contend with. I have heard it said that five bushels of salt to the acre would destroy them, or 100 bushels of lime. I have tried both, and have sowed 10 bushels of salt to the acre, and they only laughed at my folly. I tried 160 bushels of lime, as recommended, and they fattened on my bounty. I have only proved one remedy for the rascals, and that is to break

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the sod and sow it to buckwheat; plow late and as often as possible in the fall, and then sow it to peas in the spring; with the like plowing next fall they will not disturb any crop the next season.

To answer the next inquiry, what shall the farmers of Cortland, under a new order of things, pursue? is a much more difficult task, and one upon which I enter with more than ordinary diffidence. We may well say, a new order of things. Cortland has been, until this moment, an inland county, and farther from the city of New-York than the valley of the Ohio, Miami, the Sciota, or the Wabash—the cattle country of the west. I say this for the reason that the cattle dealers of that far region, standing at the Washington drove yard, seeing a prospect of a good market, could telegraph home and have their cattle in market sooner than your own dealers could have their cattle in the same market. To-morrow morning you can send your cattle by the way of Syracuse, all the way by railroad, to market, by reloading twice; next week by the way of Binghamton, without any change or much trouble. Do you believe that your calves that are well fattened, at eight weeks old, will always bring from ten to fifteen dollars, and lambs from three to eight, at the proper season. I have sold a calf at eight weeks old for sixteen dollars, and a lamb for nine dollars. The former I fattened myself, the latter I purchased. I fattened the calf by letting it have the milk of one good cow, and as much Indian meal as I could manage to get it to eat, which was less than 30 lbs. This 30 lbs., small as it may appear, was what made the superior calf. There are some scientific farmers who do not know how to feed calves with meal; but I need not say to you farmers that after you have one learned, he will teach all the rest; and to teach that one to start with, scant his milk, and he will soon learn to lick the meal from the trough, and those that are well fed will soon follow. If you regard that as barbarous treatment, put in a runt of a yearling, and he will march them all up to the captain's office. If you have none of this sort yourselves, you can find a plenty, as there is one class of farmers who always keep them on hand—I mean that class that make their money by selling hay in the fall and hides in the

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spring. For this first quality of veal, like everything else the farmer has to dispose of, the demand is quite equal to the supply. Every steamer which leaves New-York, has more or less of such calves and lambs in an ice-house, to last to any and every part of the globe to which they are bound. New-York is very soon to become the great slaughter-house of the world.

By the construction of railroads, the surplus pork will be brought in live hogs as cheap as in barrels; the barrel and brine being more weight than the offal, which is worth much more in New-York than at the west. Gentlemen, there is no calculating the value of this road to the farmers of Cortland. If your lands had been taxed to build this road, in proportion to the advantages to be derived, having due reference to their location, you could have made money by so doing, even if you gave the road to the company to run. Of all improvements, the railroad, to graziers, is most advantageous. By them you are placed within reach of the mart of the nation. What has made Syracuse what she is—emphatically a city of canals and railroads? If railroads have contributed so much for your neighbors, may we not expect your road will contribute largely to the beautiful villages of this county which it passes. I have said that you are far in advance of your neighboring county in practical husbandry, notwithstanding the bowels of her hills and valleys are filled with salt, lime, and plaster, all of which are the best of renovaters for all and every kind of crops. Onondaga has a population of 85,890. Cortland has a population of 25,140. Onondaga has 430,571 acres of land. Cortland has 260,759. Onondaga grows eight times as much barley, but Cortland twice as many pounds of hops. The latter are worth forty, and the former two cents the pound. in the making of butter she is nearly her equal; in cheese she is in advance; and last, though not least, is vastly her superior, of which you have much reason to be proud. You have only sixty persons that can neither read or write; Onondaga has 3,274, or more than fifty times as many.

Before suggesting, under the favorable auspices which surround you, any change in your present pursuits, with your permission, Mr. President, I will read an article from the Genesee

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Farmer, on page 289, September number, as well as some others, if time will permit:

"What is butter land?" An agricultural address delivered by the Hon. A. B. Dickinson, of Corning, N. Y., before the Tioga County Agricultural Society, has been much praised for its practical good sense, and exemption from theories. Mr. D. says: "The first quality of butter land is confined to portions of the New-England States, New-Jersey, Pennsylvania, and New-York, while cheese can be made and sheep grown wherever grass grows." Here the agricultural public is favored by a professed theory-hater, with a somewhat greasy theory about "butter land." "It exists in portions of New-England, but not in Ohio, Indiana, Michigan, Illinois, Wisconson, or Iowa." They may have fat land—pork and tallow land—but not land adapted to the production of butter. This nice distinction reminds us of a meeting at the court-house in Buffalo, at the time the State Fair was held in that city, at which the Hon. A. H. Tracy presided, and Prof. Norton, of Yale College, delivered, by request, a very instructive lecture on the principles of agriculture. Every one appeared to like the clear and sound teachings of the college gentleman, except Mr. A. B. Dickinson. He assailed Mr. Norton in a rude and most offensive manner. Instead of understanding the subject which he undertook to discuss, it was a wonder to all who heard him, how it was possible for any man in this State to accumulate in one short lifetime, such a mass of unadulterated ignorance as he displayed on that public occasion. Norton, Tracy, and others used him up, so that we have heard nothing of him since in an agricultural way, till the address above referred to was delivered and printed.

Speaking of "the very best quality of butter," Mr. D. says: "You have here all the elements for making just that kind of butter. To begin with, you must have in your pastures timothy, white clover, blue grass, red top, or foul meadow grass, which I think is one and the same thing, only differing as it grows on different soils; pure soft water and a rolling or hilly country. All these things you have or may have, as these different grasses will all grow well, if sowed and properly cared for, and I have never

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seen the first pound of good butter made where the cow did not feed on some or all of these grasses; and it cannot be made from these until they have been sown long enough to have the soil swarded over, to protect it from the sun, frost, and drouth."

"Mere theory again. Hundreds of our best dairy men get the first quality of butter, when feeding their cows on green corn forage, grown by sowing the seed broadcast, on purpose to extract butter from 'butter land.'"

By what right the editor of this journal says, this "theory hater," I am at a loss to know, nor can I tell why this gentleman of the craft steps out of his way to put words into my mouth which I never uttered, or an argument which no fair-minded man, with a desire to promote the truth, could arrive at.

If disbelieving many of the gentleman's theories, which I will endeavor to point out, instead of plain practical knowledge and unerring truths, constitute a theory hater, then I am a hater of theory. And I here repeat what I then said, that no first quality of butter can be made, except from the grasses there named, which will retain its sweetness for a year. And if any has ever been made in Ohio, Indiana, Michigan, or Iowa, it is rather strange it has never found its way to the New-York market. There, butter is this day selling for from ten to eighteen cents the pound, while the best firkin of butter I saw at your fair would bring thirty one cents, in a dairy of fifty firkins, to take to Ohio and Indiana to sell again. It is as good as I ever saw, and in the best firkins; and would retail this day in Cincinnati or New-Albany, Indianapolis, or Lafayette, Indiana, for forty-four cents the pound. I speak advisedly. I have sent butter from Chemung county to the latter place, out of as good, if not the best dairy in the State. There is no dairy of butter made through the whole season which will run as good as this firkin at your fair. And I should not hazard anything in saying that the cows from which it was made were fed on those grasses. And next to those, the corn of which Dr. Lee speaks, is as good, if not better, than anything within my knowledge; and I have no doubt, if in a dry season, corn was sowed, and cut up and fed to cows running in

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pastures literally dried up, the quantity and quality would be improved. For in pastures thus dried, there would be something wanting in sweetness to flavor butter, and nourishment to sustain the cow, to keep her healthy. And yet the butter made in this way would not be as good next May as that made on the grasses I had described, when they were fresh and luxuriant. And then take the corn, and feed corn and nothing else to her, tied up by her head, and keep the butter over until May, and see if it will bear any comparison to that made from the grasses referred to, and grown in New-England, New-York, New-Jersey, and Pennsylvania, or this firkin on exhibition here.

I know full well with how much pertinacity we all incline to our own country and our own farms. This gentleman is theorizing on a farm in Maryland, or Virginia, and if he will but try his hand and make one firkin from his farm, and keep it over one year, and I care not what he makes it from, if it bears any comparison in sweetness to butter made as it should be, and kept two years, I will acknowledge his theory to be correct.

The firkin of butter I have seen here will lose nothing by keeping five years, if properly kept. The only trouble with such butter is, you can't keep it, any more than the poor Indian can keep his rum. It will bring more next April than any fresh butter in the market. And the lady who manufactured it, learned the trade by the dint of industry, by working, tasting, and trying. If her milk is a little too cool to churn, she does not warm it by putting it in hot water, but takes her pail of milk, as a skillful practitioner, and places it in a large boiler of warm water, and warms it to the exact point—(it should be tested by a thermometer)—varying from one to five degrees, according to the coldness of the weather, and sets the churn in motion; nor does she set it by the fire to warm to make it bitter. And she can tell with more exactness, by putting the back of her finger against the dash of the churn, when drawn up from the milk, than the Mr. Theorist could ever tell, unless he found out from some one else its proper temperature. And this is only the beginning of making butter of the first quality.

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Mr. President, I again desire to call the attention of your society to some of this learned gentleman's theory; and it would illy become me to call it "greasy theory," and yet, I trust I shall be pardoned in testing his theory with my practice. Here it is on page 293, in his August No. In speaking of the foul in the foot, he says: "this is a disease in the feet of cattle. It presents a close resemblance both to foot-rot in sheep, and to mild cases of quittor in horses, but really differs from both. Mr. Favre, of Geneva (Switzerland), inoculated the feet of sheep with purulent matter from the feet of cattle suffering with foul in the foot, but he did not succeed in producing any symptoms similar to those of foot-rot. Foul in the foot appears to be always occasioned by the neglect and aggravation of wounds and ulcers originating in mechanical injury." I do not know what Mr. Favre, of Switzerland, did or could not do. I am no surgeon, and make no pretensions to the science; but, I will hold Mr. Editor Lee $500, that I can not only inoculate his sheep from my cattle, but Mr. Favre's cattle and sheep, from the same cattle or sheep, and if either is not satisfied with that test, I can inoculate either or both those learned cattle and sheep growers, from the same cattle or sheep, if the skin on their feet is not thicker than that of a rhinoceros.

Small herds of cattle, or sheep, are scarcely ever affected with this disease, but like the cholera and yellow fever with the human family, it feasts upon the ground. I can give it to nine hundred out of one thousand in ten days, in hot weather, while this man of science says it is always occasioned by the neglect and aggravation of mechanical injury, by the insinuating of slate and stone. I have seen hundreds and hundreds of lambs, less than three weeks old, as I have no doubt many of you have, walking on their knees, and the only symptom of foul or rot which could be found, would be a small break in the skin, between the hoofs, and could be cured at this stage in twenty minutes; and this too, on land where slate or stone could scarcely be found. While on the other hand, if there had been a slate and gravelly soil, there would have been no rot, nor would there have been on this soil to have affected these lambs thus early, if the ground had not been cov-

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ered with deep snow, and there had been a hard freezing winter to have killed the poison left on the ground from the last year's use. And now for this theorist's remedy: "and if it have a very bad form, or have been long neglected, or have become very aggravated, it will require to be probed, lanced, or otherwise dealt with, according to good surgical practice, and afterwards poulticed twice a day with linseed meal, and frequently but lightly touched with butyr of antimony." To handle one hundred head of large wild steers, poulticing with surgical operations, would be attended with much trouble and expense. Nor is the expense all: it must be at least the work of a month, all of which time the steer must be falling off instead of growing, which would put him so far back that he could not be fattened that season on grass, and would have to be wintered or fattened on grain, which would be attended with an expense of $20. This, to a practical delver of the soil, is something of an item.

And now I propose to give you my practice against his theory, that you may judge of the economy and usefulness of the one, and the "greasiness" of the other. I have had some experience, for twenty-five years, with what I once regarded, as one of the most injurious of diseases to cattle, and more especially to sheep. I now regard it as of little or no consequence, and I will only trouble you with one of twenty-five year's operations; and to that end, I will take the year in which the disease was most malignant, which was 1850. I purchased in that year more than 30,000 sheep, and had not less than 1,000 head of cattle on my farm. During the pasturing season, more than one-half of all my sheep were afflicted with the rot, and because they were thus diseased was the reason why I purchased so largely. Men came all the way from Ohio to sell me their sheep, expressly on this account. My remedy is simple and plain, and my cure equally sure. I make a three cornered field, and at the pointed corner I make a lane; in this lane or neck of the field, I set a trough, twelve feet long, twelve inches deep, of the same width, on which I fasten some scantling substantially, flareing out. I then cover the scantling with boards so that only one sheep or steer can go through the trough at a time. In the trough I place 50 or 100 pounds of

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blue vitriol, fill and keep it as full of water as it should be, covering the liquid over with straw, and set the cattle or sheep marching through. By leading a tame ox, the balance will follow. A good Shepherd dog will start the sheep through, and one man, with a well trained dog, can drive through ten thousand in one day; and one man can clean and fill the trough with water, and one-half cent's worth of vitriol will cure the worst case I ever saw.

It will kill the disease. It will not make and replace hoofs, or parts that have rotted off. With cattle it is not so malignant as with sheep, but either may be cured without stopping their growth, if taken in time. If it has been of long standing, feed sulphur freely in your salt. In the first stages, salt and water will do the work, and so will copperas, but blue vitriol is the sovereign remedy. It wants dry weather in the spring, to breed the disease, and hot weather in the summer, to spread it broad-cast, wherever the animal puts his foot. A boy who followed the cattle and sheep bare footed, took the disease on the underside of his toes, in the joint next to the foot; the skin in this joint cracked across his toes. Several boys were in this way afflicted, going to bed at night apparently well, and on waking up in the morning they were suffering considerably, and the skin near, and the sore itself, had much the appearance of that in a lamb's or calf's foot when first breaking out. When permitted to run for two or three days, it became very painful, but the same remedy would effect a cure in twelve hours; it would kill the disease, stop the pain, and the sore would heal as soon as a like sore occasioned by the cut of a knife.

If the boy who follows in the path of cattle or sheep bare footed, will wash his feet every night thoroughly, he will rarely, if ever, catch this disease, which in him might be called the ground itch. Healthy cattle and sheep which follow in the paths of diseased ones, will not catch the disease in rainy weather, as the wet grass upon which they feed at night, will cleanse the hoof and keep it healthy. The heavy dews late in the fall, are sufficient to cleanse the feet so as to prevent the poison from taking effect, while the light dews in May and June, some seasons, are only sufficient to

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moisten the path, and form a cement of the clay, alluvial and excrements of the cattle, which gets between the hoofs, and in the absence of rain remains long enough to effect the poison. It will have the appearance of a dry sore at first, but as soon as there is sufficient rain to wet the grass and keep it so several days, so as to chafe and aggravate it, it becomes a running sore.

Then, with long grass, this disease will spread in a large herd much faster and as surely as would the small-pox in this village, when once contracted, with nothing but the instinctiveness of man to check it; but with experience and practical knowledge, he confines it to the pest house, and prevents its spreading. And yet this man of science, on page 271, says: "the practical herdsman would probably do well, when his flock may have accidentally or unavoidably grazed upon rotting land, to give his sheep an hour's run, twice or thrice a day, upon acknowledged sound pasture of the most commingled herbage." What would you say to my old friend, the doctor, if he should carry around from house to house one of his small-pox patients, to partake of your "commingled" hospitality and fare. You would say to the doctor, just what a practical farmer would, "keep your poison where it is, and don't send it where it is not."

I will test but one more of his theories with my practice. In relation to the growing of potatoes, he recommends early planting without any discrimination in regard to the different kinds. The Mountain Junes will mature in ninety days, and the old-fashioned red in one hundred and twenty-five days, if planted whole, or cut in time for the potatoes to heal before planting. If planted the same day they are cut, they will require from five to eight days more time. My plan is to plant my potatoes, except what I want for early use, giving only sufficient time to ripen before frost would be likely to kill the tops, counting time for the different kinds, and making allowance for the early or late spring in calculating at what time we may reasonably expect frost. Potatoes grow best on a cold, moist, light soil. At what season are we most likely to have cool, moist, or wet weather? In Steuben, September and October, as I have no doubt they are here, are the best potato months; and I think I should not hazard much

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in saying that this year, both in Cortland and Steuben, potatoes will grow more during these two months, than they have grown during all the rest of the season, if they were not planted so early as to have got their growth before this time. It is true, this season has been unlike all other seasons for growing potatoes, and required in almost every section, entirely different treatment. The usual practice, I believe, has been to plow and hoe but once in later years, just before the tops began to fall or spread, for the reason that more than once hoeing caused too many sets in the hill, and made so many small potatoes as to diminish the yield. This has been my experience for thirty years, and I am satisfied in my own mind it is correct; but I found out early, that it was no go this year. My neighbors complained that their early potatoes had no sets on many hills, and but very few on any; six, eight, or ten, was the extent. This was an universal complaint, it was so in all my fields. I had no trouble in my own mind, how to remedy this deficiency. Frequent plowing and hoeing, I knew had always made sets. I was in the midst of my haying and harvesting, hands were scarce, and with a large crop of potatoes growing, with only eight or ten in the hill, what should I do? I set a man at work between the rows, plowing deep into the subsoil, to throw up the cold moist soil, and then rigged up a shovel plow on wheels, with a large wing, and put a boy with this plow, right behind the man, throwing this cold moist soil on to the hills, and kept at work in this way, until I had gone through them, some twice, and others three times. In the course of four or five weeks, I had increased the number in the hills, from eight or ten, to thirty, forty, and as high, in some, as fifty or sixty; and I am not quite sure but I over did the business, as there may be too many small ones in some of my fields; but I have no doubt, there are some acres which will yield from three to four hundred bushels to the acre, as dry as it has been. I plant my potatoes on the top of the ground, unless I place straw over them; I turn two furrows within twelve or fifteen inches of each other, which leaves a space on the top of the ground for the potatoes; the earth is then very easily covered over them. I put three pieces of potatoes in each hill, placed twelve or fifteen inches apart, and the hills eighteen inches apart; and I have the man who drops

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them, place the cut side down, not that it will grow any better that way, but because he will be more likely to get them the right distance apart, which is very important, as you cannot raise a peck of potatoes in a hill that only holds four quarts. I weed them with sheep, as soon as the potatoes are up nicely; when the dew is on the potatoes, I turn the sheep in the field, as they will not eat the tops while the dew is on them, and fine-wooled sheep will scarcely eat them at any time, until they have eaten all the weeds and grass that are growing in the field; which is a great saving in hoeing.

To prepare a field for potatoes, since the rot has made its appearance, I plow under a thick sod, which would be equal to fifty or sixty loads of manure to the acre, and raise on it oats, peas, or spring wheat. Then I plow deep in the fall, after the crops come off, with three horses, and follow with the subsoil plow; this makes heavy clay land light, and by bringing up the subsoil in cultivating it, you make it both cool and moist. In dry warm weather, a glass or earthern vessel filled with cold water, after standing a short time, will be covered on the outside with small drops of water, and some people think that the liquid on the inside soaks through the vessel, when in fact it is abstracted from the surrounding atmosphere; and upon the same principle, cold earth thrown to the surface, will draw moisture from the same source. The practical farmer will avail himself of this auxiliary, and by so doing, get all the moisture to which he is entitled. If he sows plaster, while his neighbors do not, he will get much moisture which legitimately belongs to them.

This treatment would not do for corn; corn requires a warm dry soil, and if planted on ground that needs deep plowing, it should be done the year previous to planting. The cold earth thrown up around the roots, would make black corn yellow, on moist soil. A few words in relation to the potato rot, and I will dismiss the subject. I think I know two remedies: the first is to plant on dry land, which has been well sapped with oats for a number of years; I have never known the rot on such land, nor did I ever see on such land a fair yield. The other remedy will afford a good yield: plant your potatoes in a wide, shallow furrow

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and cover them over with straw thoroughly saturated with brine, and then cover the straw with hoe or plow; the latter answers every purpose, if there are no stones to prevent its being well done. I planted one field of thirteen acres in this way this season, and then put on a heavy roller, letting the oxen straddle one row, rolling down three rows at the same time, and they are a good crop and entirely free from rot, as most potatoes are this season. I have seen a patch of potatoes planted in this way, all sound, while in the adjoining field they were rotted so they were not worth diging.

While on the subject of theories, pardon me for a few remarks, to show why the Crystal Palace, in New-York, has not succeeded. It was not because the building was not constructed with more than ordinary taste, nor because it was not filled to overflowing, nor was it because there was not a great display of well constructed machinery, with the best mechanical polish possible, or the finest carpets, rugs, silks, and satins, with all the other like finery of modern times, from all the nations of the earth. The design of all this, as I understood it, was to benefit and improve all who visited this magnificent store-house of the world, so that each could cull something from the many implements and tools, of all nations, there on exhibition. Many of you visited this farmers' depot on Manhattan Island. As practical farmers of Cortland, let me ask you if there was one show, from any or all countries except your own, from which you could glean any thing whereby you could cultivate your fields cheaper, better, or more pleasantly, or make grow one more grain of wheat, barley, oats, or corn, or one more blade of grass? if not, it would not pay many farmers for their journey. I had hoped to be profited by this exhibition. The more I examined it, the greater was my disappointment; and I will only give you a description of some of the implements of a nation from which I expected most. I had heard and read much of her vast improvements, and considered her superior in knowledge and skill, and was willing to concede all that she claims from the other nations of the earth, for they resort to her for practical information in regard to the best modes of tilling the soil. And what tools has John Bull sent to improve us Yankees?

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Why a clod-breaker, and a machine for diping sheep to cure the scab, and a wagon. The heavy iron machine for breaking clods, I trust will not be used in this country, for the farmer who plows his land so wet as to make clods which require such a machine to break, should not be permitted, in a christian country, to till the soil. No matter on what kind of soil he lives, or how stiff and heavy the clay, there is a time, every year, to plow when dry, and he had much better raise buckwheat on wheat or corn land, than to plow when wet, as once plowing wet, hurts land more than proper plowing and the raising of five crops. Making a farm into bricks, for the fun of breaking them up, is a mighty bad business, and one which Cortland farmers cannot be taught. John Bull's machine for curing the scab, has been out of use in this country for at least fifteen years.

Some twenty years since the cholera and potato rot made their appearance simultaneously, sweeping man and that plant as well as the leaves on some kinds of timber on the low lands, out of existence, with as much rapidity as could the scorching flames. The cholera as yet has never flourished on an elevation more than fifteen hundred feet above the level of the sea. The potato rot has spread from the level of the Atlantic and Pacific, to the tops of the Alps and Rocky Mountains, wherever potatoes grow. The itch which afflicted the human family, and the scab on sheep, both one and the same thing, disappeared about the same time. The old log school houses in the country were literally filled so full that it stuck out through the chinking, and it was almost impossible to pass without catching it. The prudent mothers, or common people, fed with sulphur, with a little molasses to sweeten it, and anointed with brimstone and lard, which never missed if well roasted in. The rich and genteel usually applied to a physician, as it was rather vulgar to use brimstone, which was not quite as pleasant flavored as perfumery, and they procured precipitate, which would check it for a time, but they would have to come to the brimstone at last, or submit to a seven years' siege. There was just this difference between the treatment of the two diseases, sulphur and molasses were administered to the children, and salt to the sheep, to purify the blood and drive out the dis-

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ease, and when faithfully applied almost invariably wrought a cure. The dipping of sheep in a solution of tobacco, after shearing, is beneficial—but what do we want of this machine, at an expense of twenty-five dollars, when a large hogshead sawed in two, which would cost one dollar, with some boards matched together, or made tight so as not to waste, and made hollowing, all of which any handy farmer can make in one day, is the better plan.

And now for some of the follies of our own countrymen, as developed at this exhibition, and that too in some of the most common implements—the ox yoke and axe helve. I saw neither of those useful and indispensable articles to the farmer that could be used by a man who had ever used one, with which he could do a day's work. These yokes were smoothly made, and painted and varnished sufficiently nice for the parlor, but what was their shape? I remember several that were twelve inches wide on the neck, and none that were less than ten inches, and I never saw a working ox whose neck, if natural, was more than eight inches thick on the top, as far back as the bow should come, unless he was fatter than oxen are usually worked. They were very good bull's yokes, as their necks are like Bob's griddle, as large one way as the other. I have seen a yoke of oxen draw both ways, on bare grass ground, eight tons of stone, on a stone boat, and their bows were only six and a half inches on the top of the neck, and they could not have drawn, in one of the yokes on exhibition, seven tons under like circumstances. To make the load light the yoke must be easy, and that ease consists in having it fit every spot. How far could a man walk in a day whose feet were two inches wide and his boots four? The axe-helves were turned and sandpapered smoothly, and well varnished, but he who chopped two cords of hard maple or hickory wood in one day with one of them would not sleep much over night for suffering with cramped hands. I would as soon use a common mush stick for a helve as one of them. The best show case was from Ohio, by two mechanics, one from Cincinnati and the other from Columbus; the names I have forgotten. In this case they had an axe weighing four and a half pounds, wide enough in the bit, and sufficiently heavy under the

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eye to raise the chip, light poll and a good helve. It would be only fun to chop two cords in a day with one of these axes. Their broad axe, carpenter and cooper's adze, were equally good, and they had a cleaver for cutting up pork, such as was never seen before in New-York or London; and tell the denizens of those places that there are men in Ohio and Indiana who can cut up one thousand hogs in twelve successive hours, and they would not believe one half of the story to accommodate you. I have seen three hogs cut by one man in a minute; he cuts two feet at one blow, the head off at one, and splits at three blows. He does nothing but just the chopping up. He keeps a half dozen men employed to bring the hogs on a railroad from the hooks, as fast as he can cut them. He uses two cleavers in cold weather, laying one on the stove to have it hot, so as to prevent the fat from sticking to his cleaver. There were many, very many excellent plows, mowers and reapers, as well as many small and useful implements on exhibition, showing the handicraft of the mechanics. The fine finish and polish of European machinery was only equalled by the handiwork of their muslins, laces and trinkets. The excellence of implements consists in their exact adaptation to the business for which they are used, and not in their polish. The plows which the western man uses for covering corn, and with which he can cover ten acres in one day, only cost two dollars, and is just the thing for that, and nothing else. As well might the tailor do all his work with one or two needles, as the farmer all his work with one or two plows. As Americans we have learned and are learning much from Englishmen. They understand the cultivation of roots and the curing and handling of hay much better than we do. They put their hay in much larger stacks, and I have no doubt but one stack of hay of fifty tons is worth, to feed, as much as eleven stacks of five tons each.

The next subject of which I conceive it to be my duty to speak is one that I approach with more reluctance than any one I have ever discussed, for the reason that my views differ from your science, which you have so skilfully and economically reduced to practice, in most all other respects, but is not in accordance with my practice. I trust you will pardon me for calling your

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attention to what I honestly believe to be a very costly mistake, which was once mine, and because I do thus honestly differ from your theory, I trust you will not charge me as does this man of science, Dr. Lee, "of assailing you in a rude offensive manner." My views may, perchance, differ from Prof. Norton's experience and great learning, or Mr. Tracy's, or even the Doctor's himself, but I will give them at the hazard of being again "used up, and never again heard of." I do not believe the Doctor has ever heard of any of those farmers on the road from this to Onondaga county line, nor ever will, as the best farmers scarcely ever speak in public or write, and yet they are thinking, plodding men, and understand their business much better than most men who attempt to instruct them. I must confess, gentlemen, that I am hazarding much, in attempting to run so near the precipice, with such experience against me, and to hold solid ground in your minds.

And yet from these three gentlemen I conceive myself out of harm's way, as neither of the three, stripped of all other resources, could earn a comfortable living for themselves and families, from one of your best farms, for a period of five years. Mr. Tracy is one of the best lawyers in the State, Mr. Norton is Professor of Yale college, Dr. Lee the editor and publisher of a widely circulated agricultural journal, and says many good things. I am one of his subscribers, and would advise each and all of you to be, unless you are already a subscriber to a *better journal.* Whether he ever hears of you or not is a matter of but little consequence to the rest of mankind, and yourselves in particular, for were he here, and with all his knowledge of chemistry, with power to summon to his aid all the knowledge of past and present tests of agricultural chemistry, and you should place at his hand all and every kind of material he should ask for, he could not carry out with profit his cherished theory of making soils congenial for crops for which the God of Nature did not intend them, nor could he make one acre of your soil raise as many bushels of wheat, or as good quality, at any cost, as a good farmer in Onondaga could raise from the natural soil. Much injury has been done to the

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agricultural world by raising and trying to raise crops from soils not well adapted to their growth, by raising weak and sickly plants, which are much easier destroyed by insects and disease than healthy and vigorous ones. The farmer might as well expect to raise the best of cattle and sheep from inferior and sickly ones, as the best of plants and grains from the poorer qualities of seed.

In advising you to cut down all those beautiful shade trees in your fields, which, in every other respect, are so well husbanded, I hope you will not regard me as a barbarian, for I have really believed that which was a luxury to man must be beneficial to cattle. My practice has proved my theory untrue, and I have cut down hundreds of shade trees, and shall cut down more. In 1849 I made up my mind that my cattle, in fields which had no shade, fattened faster than where there were shades. The next season I broke up my lots of cattle, as they came in from the West, as equally as I could, putting as nearly an average in fields containing shades and those without them, without saying one word to a good judge of cattle whom I sent in the fall to draw eighty head of the tops for market; he drew sixty-six from the fields where there were no shades. There was double the number of cattle in fields in which there were shades, in some instances nothing but a fence, and in others the road separated the different fields. I continued the practice until I procured a pair of scales, by which I could tell the exact amount. A steer weighing six hundred pounds will gain ten pounds a month more in a pasture without than with shade, that is, in five months will gain from thirty to fifty pounds more at the lowest figure. At ten cents the pound this would make three dollars difference, besides the advantage of having the steer ripe for market two or three weeks earlier, which many times is an advantage of four to eight shillings per hundred. I do not profess to have a very satisfactory reason to offer why cattle do better in one case than in the other. And the only one that has occurred to me is, that they lie in the shade all day, and eat when the dew is on the grass. It being wet it is swollen, and not as sweet, and they do not eat as much.

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Ladies and gentlemen, I have extended my remarks to a great length, and I fear that I have been tedious. In conclusion, I will only add, that I came here prepared to speak of the raising, breaking, and treatment of horses; of the advantages, and some of the errors of our State Society, which necessarily creep in, but which, under the skilful management and practical knowledge of the secretary will soon be worked out, something might be said, and with the appropriation made by the last Legislature, to fit up the old State hall, the day is not far distant when our farmers can find one place in the capital of the State, which they will be proud to visit and call their own.

And I trust that at the next session there will be a small appropriation made for the purpose of purchasing any or all the different seeds by the secretary, to be sold by him to the farmers of the State, at cost, and be by him sent to all parts of the State. I also intended to speak of the great advantages which the farmers have, and are destined to receive, from the American Institute, but on all this I have been more than anticipated. On the subject of a State Agricultural college I will only say, if you are desirous of sending your sons to such a school, and want them to learn how to raise corn, you have one near at hand. There are many farmers in Preble who are first-rate teachers. If you desire to send them from home, I can recommend you to an old man of experience, who knows exactly how a hill of corn should be treated—William Hoffman, of Chemung. If you are anxious that your sons should learn how to keep cattle, and fat them economically, from the products of their own farm, Col. Foster, his neighbor, is the man. If you wish them to learn to make butter, and a home education will suffice, you cannot do better than put them under the care of several ladies and gentlemen who have butter at your fair, and one in particular. And if nothing but a foreign education will suffice, send them up to Messrs. Carpenter, Goodwin, or a number of other dairymen in Chemung, whom I can recommend. If your sons have a taste for growing wool, and you are anxious that they should graduate with honor, I would recommend the university in the valley of Steuben, under the management of Professors Baker, Powers, Brundage, &c., as some

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of them inherited, or at least learned the art from their fathers, and have grown wool on the same farms for more than half a century without changing their flocks, except by throwing out their weak and poor wooled ones, and only breeding from their very best. They have not only succeeded in pulling the wool over their eyes, but they have made it grow from the end of their noses to their heels, with slim necks, heavy bodies, and short legs, with the finest and best kind of pantaletts, and nearly as uniform in size and shape as so many bricks. And this is the only kind of college where boys can be profoundly learned so as to farm and make it pay.

DELAWARE.

MEREDITH, *December* 29, 1854.

B. P. JOHNSON, Esq.:

Dear Sir—Your circular, containing inquiries relative to the present agricultural condition of this county, reached me a few days since. It is impossible for me to give answers to the various inquiries contained in your circular, that will be in all cases satisfactory to myself, but I shall intend to make them as correct as possible.

The past season of "seed time and harvest," was eminently disastrous to the farmers of Delaware county. So far from realizing a profit from their investments and their labor, they, most of them, fail to derive a farmer's frugal living for themselves and their families from their farms. The prevailing drouth fell, like the hot breath of a simoon upon our territory, withering up every green thing; the heavens were as brass over our heads, the earth as iron under our feet. As a consequence, our barns, on the commencement of winter, were, comparatively speaking, unfilled; to-day they are as empty as we usually have them on the 1st of March.

Most of the improved lands of Delaware county are appropriated to dairies, and incidentally to the rearing of cattle and sheep.

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Very little cheese is made, the dairymen confining their attention to the manufacture of butter, in which they have secured an enviable reputation. Their butter is no way inferior to Goshen, so long marked in price currents at figures denoting it a luxury. The cheese consumed in this county, like the whiskey, is mostly the product of the neighboring county of Otsego. We have reason to think that our dairies, in a few years, will furnish cheese for exportation that shall sustain a reputation equal with the butter they now send into market; whether we shall become producers of the whiskey we use, depends much upon the future action of our law makers. Pastures and springs were seriously diminished, both in their quality and quantity, by the drouth of the past summer; and, as an inevitable consequence, the product of our dairies was also diminished. The few farmers who had sown pieces of corn, were provided with a supply of succulent food for their cows, at the time when pastures became brown and arid, and were abundantly remunerated for the labor and time expended in preparing the crop. I think the amount of butter made in this county the past season, is, at a liberal estimate, *one-fourth less* than the average for the three years preceding, while the producers have realized about the same price per pound as in previous years.

The custom of our dairymen is to pack their spring butter in tubs, and sell as fast as made, to the speculators, realizing therefor an average of twenty to twenty-one cents per pound. After the pastures yield a full supply of food for cows, the packing of butter in firkins commences, and continues, usually without interruption, until grass is killed by the frosts of early winter. The butter thus made is generally taken up by speculators, who pay from sixteen to twenty-four cents per pound therefor. Butter is again packed in tubs until mid-winter, and sent immediately to market.

Wheat is but little raised in this county, our soil not being adapted, generally speaking, to its cultivation. It is nevertheless true that every farmer has more or less land capable of producing remunerative crops of wheat, and there is now a prospect that a few acres of wheat will be fashionable on every Delaware

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county farm in coming years. Ordinary, or rather inferior brands of western flour are now retailing among us at $12 per barrel, and the purchase of the entire breadstuff of a family at such a price, is a very solemn business, begetting much grave reflection, and producing well settled resolves in many a breast, to raise a piece of wheat next year. Rye has been very little sown for several years, but an improvement in our local custom was observable the past autumn, when a largely increased number of acres was sown with this "brown but comely cereal." Our population is not eminent for its attachment to rye bread or rye whiskey, although there is little of the bread in use, or the spirit we drink so healthy or so safe as that produced from rye. Those who prefer bread made from adulterated or damaged wheat flour, and "grog" manufactured from logwood, coloquintida, and other "pizen stuff," will probably differ from me in opinion. In this connection, it is proper for me to say, that a large proportion of our population (and the remark is eminently true of the farmers,) is alike hostile to the manufacture and use of intoxicating beverages, and class ardent spirits, be they pure or imported, among taboed articles. Barley is so rarely raised by our farmers, that it scarcely need be mentioned. (We have neither brewery or distillery within our borders!) Corn is generally a remunerative crop, and its culture is steadily increasing. In addition to the crop of the past summer, large quantities are using and will be used during the present winter, bought in the neighboring counties, and brought here at an expense of ten to twelve shillings per bushel. Buckwheat was almost a complete failure. Many fields never sprouted, and many other fields, as soon as up, were destroyed by grasshoppers. Oats, a crop upon which we place much dependence, was reduced fully one-half, probably more, by the drouth. The hay crop of the past season, except in highly favored localities, was diminished one-half to one-third in quantity.

From what I have already said you will expect to hear that the number of our domestic animals has decreased during the year. Nearly every farmer has sold most of his young stock, and often at nominal prices. Good cows were sold in my vicinity

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during the past week, at $18 to $22; selling at such prices because their owners, in many cases, find their hay does not "spend well", and know, also, that they cannot buy more hay for love nor money. The Devon breed of cattle has been and still is a favorite with many of the stock raisers of this county. The uniform beauty, docility and fleetness of the oxen of that breed, make them general favorites; while the cows produced by crossing the Devon bull upon the common stock of the country, have proved themselves valuable in the dairy. There are some Durhams and Ayrshires kept in the county, but I am not informed how fully they have sustained here, on our hill pastures, the high character they have established in more favored localities. We can show good flocks of sheep, fine, middle and coarse-wooled. The amount of wool grown, is however, very small when compared with the crops produced ten or fifteen years since.

Drainage has received considerable attention in the county, and satisfactory results have followed. A large proportion of our hill land is a chocolate-colored clay loam, underlaid by a tenacious "hardpan." It needs no scientific theorist to tell the cultivator of such a soil, that drainage is almost indispensable; and that when well drained, there is no more desirable soil for the ordinary purposes of the agriculturist.

The annual fair of the county agricultural society was held in Delhi, on the 20th, 21st, and 22d days of September. The first day—the day when most of the entries are usually made, and most of the stock and articles intended for exhibition are brought upon the ground—was unpropitious. The next day was a beautiful one, and the grounds of the society were visited by an immense concourse of our citizens. Perhaps it was the largest gathering of our citizens ever known in the county. The list of entries for exhibition was larger than at any previous fair of the society, and the exhibition, in its various departments, was highly meritorious. The exhibition of horses and cattle would have been gratifying to any county society within the State, and furnished abundant proof that we have made commendable progress during the past few years. Our society has secured a strong hold upon the respect of our population. Its annual-fairs have become

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occasions of commendable rivalry, and are looked forward to with general interest; and with careful management on the part of the future officers of the society, and a corresponding disposition on the part of the public, to yield them a generous and confiding support in their efforts to advance the interests of the farming community, the county agricultural society will continue to be what it has become, an ornament as well as a benefit.

Respectfully yours,

S. A. LAW, *President.*

ERIE.

Our Erie county society held their annual meeting at Aurora, on the 20th and 21st of September last. The exhibition, though fair, was far inferior to what it should be in this county. The county being divided in the center by the new and wild country known as the Buffalo Creek Reserve, renders the exhibition a local one when removed from the city of Buffalo. Aurora, and the adjoining towns entered a fair number of animals and articles of produce, though not of superior quality, more distant parts of the county entering but few articles. The show of horses was, however, very good. The products of our county for 1854, though inferior to ordinary seasons, in consequence of the drouth, was, nevertheless equal to the adjoining counties. No funds were contributed to the society except for members' fees, which amounted to $136. Balance on hand at this date $174. The annual meeting for the coming year was voted to be held at East Hamburg, and Allen Potter was elected President; Myron H. Stillwell, Secretary; Amos Chilcott, Treasurer; all of East Hamburgh.

J. W. HAMLIN, *President.*

ESSEX.

The Essex county agricultural society met at the inn of David Judd, in Elizabethtown, pursuant to adjournment, and was called to order, Vice-President Hale in the chair.

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The minutes of the last meeting were read.

The committee to settle with the late Treasurer made their report, and it was accepted.

The secretary read a letter from the late president, tendering his resignation, which was accepted. Robert S. Hale Esq., was nominated to fill the vacancy, but on request of Mr. Hale, the nomination was withdrawn. Hon. Eli W. Rodgers, of Whallonsburgh, was then elected president.

The committee on amendments to the constitution presented their report, and it was accepted. The first amendment proposed, was the insertion of a new section between sections four and five of the Constitution. The proposed section was amended, and as amended was adopted by the unanimous vote of the members present. It is as follows:

"§ 5. The said executive committee shall also appoint three auditors, who shall hold their offices for one year, and till others are appointed, and whose duty it shall be, to examine all accounts of the treasurer and of all other persons who may at any time have the charge, receipt, or disbursement of any of the moneys or funds of the society, and said auditors shall make all necessary reports in relation thereto to the executive committee, with all convenient speed. And no moneys shall be disbursed by the treasurer except upon the warrant of the said auditors, or a majority of them, or pursuant to a vote of the executive committee."

The second amendment proposed was not adopted. The third amendment proposed by the committee, was the addition of a section to the constitution, to be § 10, and it was adopted by a vote of more than two-thirds of all the members present. The section is as follows:

"§ 10. In case an act of incorporation has been, or hereafter shall be granted to the society, the executive committee shall have authority to adopt and accept said act as the charter of this society, and thereby cause the said society to become the corporation under said act; and all of the funds, property, and books of the society shall thereby become the property of said corpora-

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tion, and the officers thereof for the then current year, shall be the officers of said incorporated society, until others shall be chosen."

The society adjourned sine die.

ROB. S. HALE, *Vice-President.*

C. A. HAND, *Secretary.*

W. C. Watson, Esq., Port Kent, writes:

I have no data by which I can even approximate to any accurate calculation of the average crops of this county in the current year.

The loss from the drouth, the wide-spread and destructive conflagrations which it occasioned, and the necessary derangement in all agricultural pursuits and calculations which ensued, has been immense. In a recent address before our society, the conviction was expressed, that the direct and indirect effects of these causes have been the impoverishment of Essex county to the amount of one million of dollars. This opinion was concurred in by intelligent men from every section of the county, who were present at the fair. Numerous fields of grain have not been harvested at all. Many crops, which while standing promised from their appearance a favorable yield, have been found on thrashing to be so blighted and shrunken in the berry, as to disappoint every expectation.

In some moist places, which in ordinary seasons would have been unfavorable to the crops, the product has been very good. The copious autumnal rains which succeeded the drouth, have had an amazing influence upon potatoes planted late. In many instances a fair yield was realized in fields which had been regarded as hopelessly lost. Since that period this crop has advanced with exceeding rapidity. The weather, also, both as it affected this crop and fall feed, has been highly auspicious. Up to this date we have had no snow, and in the environs of Lake Champlain, little frost. The hay, has proved, contrary to the general expectation, our best crop.

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I think, embracing all the crops except grass, that we must compute the diminution of our harvests in Essex county, as approaching three-fourths of an ordinary yield.

The fly, I believe, has not essentially injured the wheat crop, although both wheat and oats have suffered from the rust. This effect is much more apparent in some varieties of wheat than others. The fruit in the county, except in the immediate vicinity of the lake, has almost totally failed. My observation confirms the opinion, that lands deep plowed and drained, have been the least affected by the drouth.

Essex county exhibits the clearest and most gratifying evidence of improvement and progress in its husbandry. This fact is apparent, equally from the character of our tillage, and in the appearance and qualities of our animals. Aside from the disastrous results of the present season, our agricultural population may be pronounced eminently prosperous. Most of our farmers are generally attaining to positions of pecuniary independence or competency.

Officers, 1855.—Hon. Jas. S. Whallon, President, Whallonsburgh; C. A. Hand, Secretary, Elizabethtown; Wm. W. Root, Treasurer, Elizabethtown.

Mr. Whallon having declined the office of president, Hon. E. W. Rodgers was appointed in his place.

Funds.

1854.	Received at fair,	$442 00
	From State,	71 00
		$513 00
	By payments for premiums and expenses,	448 76
	On hand,	$64 24

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FRANKLIN.

The executive committee of the Franklin County Agricultural Society beg leave to make the following report of the proceedings of the society for the past year.

While it has been a year of financial distress to many, and of disaster and discouragement to the farmer, whose labors have met with poor returns, to the society it has been one of success, and, it is believed, of usefulness.

Your committee met on the 23d of March, and again on the 6th of April, and made out a list of premiums, which they considered would best promote agricultural improvement and the general prosperity of the society. While your committee concede, that after full consideration, some of that list they would have wished altered, yet they believed it one that would tend to incite farmers to a better cultivation of their crops, better breeding and care of stock, and to a better and more systematic management of their farms. None are more sensible than your committee of the difficulty of offering a list appropriate to the financial ability of the society, and one best calculated to meet the wishes of competitors.

No agricultural society, however so well managed its affairs, or however so inviting to competition its list of premiums, can accomplish its objects without the friendly and hearty co-operation of all its members. The amount offered was $850. The premiums on crops were largely increased, with the design of inducing a spirited competition; but the severe drouth has prevented the useful results that otherwise could have been expected. A large proportion of the premiums offered would fail of bringing much into the treasury, as for instance, the premiums on farms and dairies amounted to $120; for these there were only twelve applicants, and each of these would have paid his dollar to the society. From these considerations, the executive committee were led to believe that in no way could the large

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amount of premiums be raised but by rendering the fair attractive as well as useful.

The fair of the society was held on the 20th and 21st of September. The first day and part of the second were devoted to making entries and arrangement of articles and animals intended for exhibition. The executive committee are convinced that sufficient time was not allowed for the judges and secretary to perform their duties.

The display of horses was creditable to a county whose animals stand among the first in the country for speed and usefulness. Ninety were entered for premiums, and fifteen or twenty for discretionary awards. There were about 100 cattle entered for premiums. Of thorough-bred stock there was a larger number on exhibition than at any previous fair, and some that would not suffer much in comparison with any in the State. All who attended the first fair and the last will bear witness to the influence of the society in promoting the improvement of our cattle and horses, and the introduction of blood stock from abroad. If all the stock in the country could be made as good, or nearly as good as that exhibited at our fair, it might prevent the humiliation of begging for buyers of our mis-shapen and ill-cared for animals, and the receipts of the farm would foot up at the close of the year with larger figures, and perhaps more of them.

The annual meeting of the executive committee was held on the 4th instant. The committee on farms and dairies made their reports. From the ability with which they discharged their delicate duties, the executive committee felt they had not entrusted the award of those premiums to unfaithful or incompetent hands. $60 were paid in farms, $52 in dairies, and $76 were awarded in crops.

No premiums were paid on orchard and shade trees, owing to the judges delaying the discharge of their duties till it was too late in the season.

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An agricultural society has become a necessity to the farming interest. This society, with its yearly festival, is now an established institution of the county, and it claims the support of all who believe that heads as well as hands are needed in the business of the farmer. It incites them, by its premiums and exhibitions, to improvement, and asks them to give to others the results of intelligent labor.

Financial:

To cash received,.....	$1,428 93
By premiums paid, and expenses, ...	1,107 99
Balance on hand, ...	$320 94

Officers for 1855.—President, James Duane; Treasurer, H. H. Hosford; Secretary, D. R. Sperry; Executive Committee, C. C. Keeler, Geo. Churchill, Edmund Sargeant, Allen Hinman, Sam'l Field, C. J. Rider, and M. L. Parlin.

JAMES DUANE, *President.*

D. R. SPERRY, *Secretary.*

REPORT ON FARMS.

The undersigned committee, appointed by a resolution of your executive board, to award the following premiums, to wit:—

For the best conducted farm of 100 acres or upwards,...	$15 00
For the second best do do do ...	10 00
For the third best, do do do ...	5 00
For the best conducted farm of 50 acres or upwards, and less than 100 acres, ...	15 00
For the second best conducted farm of 50 acres or upwards, and less than 100 acres,.....	10 00
For the third best conducted farm of fifty acres and upwards, and less than 100 acres,.....	5 00

beg leave to report:

That in accepting the trust reposed in them, they understood, by the terms of their commission, that in the examination of a farm, they were to consider with reference only to the manner it

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was being conducted to produce two results, viz: The greatest profit in immediate return, and in keeping up the state of cultivation, and enhancing the value of the land.

Your committee are of the opinion, that the judicious management of manures, the redemption of the soil from noxious weeds, surplus water, stones, and whatever may obstruct the free operation of the plow and harrow, and the construction of tidy and substantial fences, of the best materials, that the different localities afford, are leading evidences of good husbandry, and the manner of doing these things strongly marks the merit of the farmer. The latter are too palpable to require any demonstration, the former, although equally obvious to reflecting minds, is but poorly appreciated in a practical point of view, by farmers in general. The farmer who saves his manure with care, and applies it with common sense, will steer his course with safety, and not be lost on a barren waste. But neglect manures, and no part of the world can long continue fertile under the exhausting process of agriculture.

If without manure the father obtains good crops, he will surely leave desolation and poverty to his sons. Here is an instance in which the iniquity of the fathers is visited upon the children. In an exceedingly interesting work, entitled American Husbandry, published in London, in 1775, and written by an American, the following remarks may be found on page 98, vol. 1st: "Wheat in many parts of the province (New-York,) yields a larger produce than is common in England. Upon good lands about Albany, where the climate is coldest in the country, they sow two bushels per acre, and reap from thirty to forty, and with such bad husbandry as would not produce the like in England, much less in Scotland. This is owing to the richness and freshness of the land."

According to the State census of 1845, Albany county produces now only seven and a half bushels of wheat per acre, although its farmers are on tide water, near the capital of the State, and in the enjoyment of a good home market. Dutchess county, also on Hudson river, produces on an average only five bushels per acre; Columbia, six bushels; Rensselaer, eight; and Westchester seven:

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which is higher than the average of soils that once gave a better return than the wheat lands of England, and that, too, under the disadvantages of bad husbandry.

Such results are clearly traceable to the influence of the skinning system. Such results are not peculiar to Albany, but are found in Franklin, or anywhere else where manures have been neglected. Every crop takes precisely itself from mother earth. And "all the time taking out of the meal tub and putting nothing into it," will surely bring you to the bottom, is as true now as when uttered by "Poor Richard," and very forcibly illustrates the subject under consideration.

Your committee are aware that the opinion is somewhat prevalent that the growing of grain necessarily produces deterioration in the soil, but their visits of a large number of farms, many of which were not competing for premiums, induced your committee to believe that grain-growing, as practiced in Franklin county, need not impoverish the soil. Consequently they have made no distinction between the farms devoted to grain or grass mainly, otherwise than as the management on the whole seemed likely to affect the results in question.

Your committee visited the various farms competing for premiums, during the first of July, that they might examine growing crops, especially the grass, and again visited such of them as they esteemed necessary, during the last of August, to learn particularly the modes of conducting the various farms, and to observe the results with more accuracy than could be obtained on the first visit.

Before entering upon the discharge of their duties, your committee caused a series of interrogatories to be prepared, embracing the whole system of agriculture as practiced in Franklin county, and required from each of the competitors strict and concise answers thereto; whereby they were enabled to elicit full information on all subjects, and to compare the modes pursued at their leisure, comparing cost and production, and conforming the same by their actual inspection.

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In awarding these premiums, your committee abstract from the several statements, so much thereof as they consider of importance, and not in general practice in the county.

They award the first premium of the first class, to the farm of Harvey W. Whipple, of Malone,..... ... $15 00
The second premium of the same class, they award to the farm of Philemon Berry, of Westville,..... 10 00
The third premium of the same class, they award to the farm of Norman M. Foote, of Malone, ... 5 00

From the statement of Mr. Whipple they abstract as follows:

My soil may be described as sandy loam, resting upon a subsoil of sand and gravel, and does not require draining. When my pastures or meadows fail to produce well I seek renovation in the use of the plow. Having first cleared the surface of everything that would essentially impede the operation of the various implements used in tilling the soil, I plow very deep in autumn, and roll down the furrow slice. In the spring I harrow thoroughly, and if the ground is heavy, plow again and bush.

On this land I sow, as early as the land admits of tillage, from one and a half to two bushels of red chaff spring wheat per acre, and complete the tillage with the harrow, roll, and bush. I harvest while the berry is soft; the wheat is heavier and the straw better food. Average yield, 20 bushels per acre.

In autumn plow in the wheat stubble, and in the following spring manure heavily—at least twenty-five* loads per acre, and would like double that quantity. This land is planted to corn about the 15th of May, or to potatoes any time in the month of May.

I hoe my corn three times, and plaster between the first and second hoeings. Average yield per acre, 40 bushels. I hoe my potatoes twice, and when the tops nearly cover the ground, sow broadcast plaster and ashes mixed. From experiments made, I believe that this prevents disease of potatoes on my farm. Ave-

* In this report, a load of manure is considered to be a full load for a yoke of oxen or a span of horses.

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rage yield, 200 bushels per acre; but last year my field averaged 300 bushels. These fields are immediately plowed on the removal of the crops from the soil, and in the following spring subjected to the same mode of treatment as first mentioned, for a second crop of wheat, and seeded with eight quarts of timothy and eight pounds of clover per acre, every possible pains being taken to leave a smooth surface for the scythe. Average yield of hay per acre, two tons.

Among my farm buildings I have a barn 40 by 46 feet, with a basement or cellar which serves as a stable for twenty-four head of cattle, and a reservoir for manure, with which I mix turf and muck plentifully. Adjoining my barn is a shed 100 feet long, with a feeding rack the whole length, for the accommodation of young cattle, and hay-loft above.

My barn-yard is so constructed as to prevent drainage, having an excavation in the center, toward which all liquid manure flows. This is also liberally supplied with muck and other absorbents. I also have a horse barn and carriage house, thirty by forty-six feet, with a basement in which I keep my swine, store and cook their food, which consists in part of roots. The droppings from the horses are let down through scuttles into the basement, and there composted by the hogs. This place is also well supplied with muck. I make 300 loads of manure annually, and intend to bestow more labor in this department, and largely increase the quantity of my manure. All of my outlays for manures pay great interest on the amount invested. I am particular to draw out every particle in the spring, and spread evenly as possible upon the surface, ard plow immediately under. I deem it important to thoroughly pulverize the manure before it is plowed under, and therefore harrow before plowing. About 125 rods from my buildings, I have a fine durable spring, from which I bring any desirable amount of pure water to all my buildings, in sheet iron pipes, 2¼ inches in diameter, and laid in water lime at an expense of two dollars per rod. Where stones prevail, my fences are invariably constructed of that material, some of which have been thirteen years in building, and the top stone is not yet laid. My walls are commenced very broad at the

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bottom, and with the largest stones, and those which I cannot remove without, are blasted. Every successive plowing brings more or less small stones to the surface, which are immediately placed on the top of the walls. Additions are thus made from year to year, and the walls may be carried to any desirable height. On a large part of my farm there are no stones, and there I construct fences of cedar posts and boards.

The examination of the premises of Mr. Whipple fully corroborated his statement, and your committee believe that he has not been guilty of exaggeration. In Mr. Whipple's library your committee found a complete set of "The Cultivator," from its commencement under the editorial charge of Judge Buel, down to the present time; a fact that we take great pleasure in referring to.

The buildings were in a good state of repair, and generally well arranged. The horse barn and pig sty is deserving special consideration. We consider it a model arrangement, and well worthy a journey of a hundred miles to see. In the arrangement of his cattle barn great improvements can be made. All the stabling should be on the first floor, and the whole basement devoted to the making of manure. With this improvement, Mr. Whipple's facilities would enable him to double his manure, which would double his crops and double the intrinsic value of his farm, and that too, without materially increasing his expenses. Mr. Whipple has not been favored in the lay and locality of his farm, like many others; and his indomitable energy, perseverance, and industry, with good calculation and economy, is the secret of his success as a farmer. It may be truly said of him, that he has made two bushels to grow where one formerly grew, and this accounts for his being able to keep forty neat cattle and five horses on a little more than 100 acres, beside selling a large quantity of surplus grain, and that, too, on land naturally sterile and hard of access.

Your committee were favorably impressed with the general good order and neatness which prevailed in every department on

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the premises of Mr. Whipple, and recommend his example as worthy of imitation.

The farm of Philemon Berry, Esq., of Westville, to whom your committee awarded the second premium, has been long and favorably known, and Mr. Berry has always enjoyed the reputation of conducting his operations with great energy and skill. And although he has labored under the blessings of great natural advantages, both in the lay of the farm and the quality of the soil, his farm had, at the period in which he commenced his labors, externally, but a gloomy and forbidding aspect, and in the hands of most men, what is now the most beautiful and productive farm in Northern New-York, would have remained to this day a useless waste. A small portion of his farm is a sandy and gravelly loam, resting upon a gravelly subsoil, and is denominated ridge land. But the main part of the farm is clay, coated with muck, which varies from three to twelve or even to eighteen inches in thickness, and had in its primeval state a swampy appearance. From his statement we abstract as follows:

My farm is drained by 500 rods of large open drain, and 700 rods of side, leading into main drains. These drains are in right lines and parallel to each other whenever the lay of the land will admit, which is almost invariably the case, and are made with the plow, pick, spade, and shovel. I have 95 acres in meadow, 183 acres in pasture, 65½ acres under the plow. I use no manure but barn yard, of which I have at least 400 loads annually. I draw all out in the spring, and spread broadcast, evenly as possible, at the rate of forty or fifty loads per acre, plow immediately under, and plant to potatoes and corn.

The next spring, as early as the ground can be deeply worked and thorougly pulverized, sow one and a half bushels of good clean wheat per acre, with ten quarts of timothy and clover. Sow oats on greensward the year before the corn and potatoes, without manure. I sow from ten to twenty acres of wheat per year; average yield, twenty bushels per acre. Plant twelve acres of corn, average yield, sixty bushels per acre; have had 100 bushels per acre. Sow about twenty-five acres of oats per year, average

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yield, fifty bushels per acre. Plant about six acres of potatoes per year, average yield 250 bushels per acre. Usually keep about seventy head of neat cattle and eight to ten horses in winter, and more in summer. The average here spoken of may be understood to embrace the past five years.

Mr. Berry had a fine dairy of twenty cows, and a beautiful herd of full-blood Devon cattle, to which it is supposed other committees will do ample justice. Your committee were forcibly struck with the admirable arrangement of his pastures. They were nine in number, and all so fenced as to afford the cattle easy access to an abundant supply of pure water. A road or highway was constructed from the barns to the most remote pasture, for the accommodation of the cattle; all the rough places made smooth, and the wet places made dry. The meadows of Mr. Berry were fine, much of which would yield from two to three tons of hay per acre. In short, a personal inspection of the premises, abundantly substantiated the truthfulness of his statements in the mind of your committee. His farm was well fenced with cedar and black ash rails, but still lacks the upright stakes and caps, without which all such fence is defective. But Mr. Berry's chief error lies in the management of his manures. These are not sheltered in the least, and consequently must suffer a great diminution in value from the action of the frost and rain before they can possibly be buried in the soil.

The statement of Norman M. Foote is long, interesting, and well written, but your committee, with much regret, feel obliged to omit it.

It is due from the committee to state, that the premises of Mr. Foote were found, on examination, to be managed in a neat and economical manner. Although nature has done much to aid Mr. Foote, in the quality of his land, much credit is due him for the neat and systematic order in which everything about his premises is kept. In passing over his fields, we were not annoyed with seeing in any of them thistles, dock, or other foul weeds, nor bushes or hedges about the fences, nor pieces of rails, stumps, or stones upon the surface of the soil; all was clean and workman-

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like, giving an opportunity for every foot of soil to grow useful plants instead of thorns.

Mr. Foote commenced poor. Having accumulated $400, the savings of three and a half years' labor by the month, he took possession of sixty acres of land in the year 1836. Since that time he has continued to purchase, and is now the owner of 411 acres, subject to no incumbrance whatever. A large proportion of Mr. Foote's farm is now better worth fifty dollars per acre for agricultural purposes, than it was ten dollars when he took possession of it. Mr. Foote has made all his improvements, and reared a numerous family, under more than an ordinary degree of expense and affliction, incidental to human existence, and all from the produce of his farm; an example rarely to be met with, but shows what the soil will do for us if judiciously managed. "Keep your shop and your shop will keep you," was a maxim of our great Franklin, and is it not most strikingly verified in this instance?

To decide upon the relative merits of these farms was not an easy matter, and it was not without much compromise of feeling that your committee agreed.

Your committee award the 1st premium of the second class farms to Mason Spencer, of Malone,.....	$15 00
The 2d premium to Philo Berry, of Westville,.....	10 00
The 3d premium to Robert C. Wright, of Fort Covington,.....	5 00

Many things in the management of these farms is praiseworthy, and your committee would feel very happy in making it public; but the already protracted length of this report admonishes us that it ought not to be further extended. It is much to be regretted that so little attention has been given to the keeping of farm accounts, whereby the expenses, profits, and losses of the farmer could be at once exhibited; and we cannot but regard the too frequent practice of neglecting such accounts as almost as detrimental to good farming, as guessing at the proceeds and dividends would be to the interests of the stockholders of a bank or railroad;

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and your committee would recommend that a liberal premium be offered for the best conducted farm account.

We were also disappointed in not finding more attention paid to the cultivation of carrots and other roots, for winter feeding of stock, upon these choice and generally well-conducted farms, which we here respectfully suggest as profitable on any farm.

Upon all the farms visited we have found the great body of the stock well housed in winter, and the farmers universally testify that it is a saving of from 25 to 30 per cent. in forage, and a like gain in the superior condition of the animal over wintering stock in open yards.

In conclusion, your committee beg to testify to the hospitality and kindness with which their brother farmers everywhere received them, and to the cheerfulness with which they exhibited their systems and accounts.

CHARLES J. RIDER.
JOHN DE LANCEY.

FARM CROPS, 1854.

Corn,.....	bush. per acre,	85, 78, 52¾.
Rye, (spring)	do	22¾, 19.
Barley, ...	do	41, 40, 31.
Oats, ...	do	86½, 42.
Peas, (marrowfat)....	do	17½.
do (common).....	do	35, 24¼, 24.
Potatoes, (carters)....	do	154.
do (peach blow)	do	254, 247.

Carrots, (orange) 864½, bush. on ½ acre.
do. 304 bush. on ¼ acre.
Turnips, (white globe and Aberdeen) 610 bush. on ½ acre.
Swedes, 210 bush. on ¼ acre.

The drouth affected the crops in this county very much.—Drained lands were less affected than undrained. Farming is improving in the county.

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FULTON AND HAMILTON.

The annual fair of the Fulton and Hamilton County Agricultural Society, for the year 1854, was held at Johnstown, on the fourth day of October.

The attendance was not so large, nor the exhibition as numerous as last year; yet, considerable interest continues to be manifested by those who engage in it; so much so, that the Society promises to be more successful for the future.

The receipts of the Society during the year, including balance from last year, were		$160 69
Disbursements as follows:		
For premiums, paid,.....	$94 00	
Incidental expenses, ...	8 50	
Balance on hand, ...	58 19	
		$160 69

Officers for 1855: — For President, William I. Robb, West Perth; for Treasurer, John Wells, Johnstown; for Secretary, Daniel Cameron, Johnstown.

WILLIAM I. ROBB,
Secretary.

GENESEE.

Hon. H. U. Soper, President Genesee Co. Agricultural Society, writes:

BATAVIA, *Genesee County*, Dec. 4, 1854.

B. P. JOHNSON.

SIR:—Your favor, asking for information as to the agricultural progress and products of our county, for the last year, came to hand while I was absent on a visit to the west. I hasten to comply with your request.

1st. The chief product of our county is wheat; about two-thirds of Genesee county, except the southern tier of towns, is

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peculiarly adapted to the raising of wheat, and a portion of the southern tier is very good wheat land, and the remaining portion is more adapted to grazing.

2nd. The quantity raised this year, has been materially diminished by the weevil (wheat midge) and drouth. In some of our finest wheat lands, the midge did considerable damage, and particularly in Alabama. This is the first season that our farmers have suffered much from the midge, and it has produced much alarm.

3d. I can only estimate the number of acres devoted to the raising of wheat in this county, and, I fear, my estimate may be wild. The area of the county is about 315,000 acres, and of that quantity, I should think, about 50,000 acres are in wheat, and would average about 15 bushels per acre, the last year. The quality of wheat raised is of the first class.

4th. The other products of our county were quite light. Grass was small, in consequence of the drouth, and, at one time, it was feared, that the corn crop would suffer very much; but, in most portions, the crop of corn was a fair yield and of good quality.

5th. The number of acres under tillage is increasing from year to year.

6th. I cannot say whether animal stock has increased. At our County Fair, last fall, the show was quite large and very fine. The show of Devon stock was uncommonly large and would seem to indicate a preference for that kind of stock.

7th. The attention of our farmers to scientific culture is increasing very much, and more attention is constantly directed to thorough plowing.

8th. Drainage has received very little attention. Some farmers, however, are experimenting with tiles for this purpose. As far as it has been tried, it has met with great success and favor.

9th. The value of farms has been rapidly on the increase, until within a short time and even now, first quality wheat farms command a very high price.

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10th. The products of our county are marketed at several points, but principally at Batavia, Le Roy, Byron, Stafford, and Bergen, being situated upon railroads, afford a good and convenient market for the adjoining territory.

Our County Fair was largely attended, and the exhibition of animal stock was unusually fine. The exhibition of horses was very fine. I regret to say, that the exhibition of domestic products by the ladies was rather small, and hope this department will be improved another year.

Very respectfully, yours,
H. U. SOPER,
Pres. Genesee Co. Agric. Soc.

Officers for 1855:—H. U. Soper, President, Batavia; D. R. Sperry, Secretary, Batavia; C. Kirkham, Jr., Treasurer, Batavia.

GREENE.

The 13th annual exhibition of the Society was held at Catskill on the 28th and 29th September.

The inauspicious season, and the excitement relative to the prevalence of cholera, told with double effect on the proceedings of the first day. To the farmer, as well as "the rest of mankind," the difficulties and trials of the past year have been incalculable, and a very large attendance was not anticipated; but it seems to us that Greene county is *always* behind her neighbors in every interest that pertains to the husbandman. Her people do not seem to understand or appreciate the great object of agricultural gatherings. The diffusion of all useful improvements by an exhibition and comparison of the progress and products of different localities, by an interchange of the knowledge possessed of the best stock, grain, implements, mode of culture, and a free expression of sentiment upon all subjects, seems to be little understood. There are indubitably no better means for the furtherance of these objects, and for encouraging enterprise, than the annual gatherings of the people at such fairs as those of our agricultural socie-

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ties. The stock department was unprecedentedly small, and almost an utter failure; the show of horses, however, was very creditable. In working cattle—an important item—the display was good. The swine, and other exhibitions which we will not now enumerate, were decidedly swinish in many respects. The grounds appropriated to the fair were well chosen, a few rods from the upper end of Main street, on a tract known as the "Van Orden Hill." The Hall of Fine Arts, at the court house, was an attractive feature, and exceedingly creditable to the contributors. Although the contributions were not as extensive as could be wished, they were very good, including beautiful specimens of paintings, needlework, &c. In domestic manufactures there were some excellent samples. We were prevented from giving a close examination to this department, but we saw enough to convince us of the comparative superiority of the display. The products of the dairy, exhibited in the same hall, gave conclusive evidence of attention to this most important, and now highly remunerative branch of rural industry. At present and prospective prices, dairy farmers can begin to specify in regard to the exact period of the "good time" which has been, to many, so long "coming."

On Friday the village of Catskill presented a cheering appearance. In the morning the streets were filled with people wending their way to the fair ground, to witness the parade of military and firemen, and the exhibition of equestrianship by ladies.

In the afternoon an address was delivered by Hon. A. H. Bailey. The inadequate conveniences prevented a larger attendance, but those who were there had reason to felicitate themselves that the fear of a fall from the slender seats, or a plunge into the crowd, did not keep them away. The object of the address was to establish the proposition of the importance of education in every branch of industry, and no one at all acquainted with the speaker can doubt that it was done in a manner as full of force as of interest. A copy of the address was requested for publication.

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The competition for the plowing match was very spirited.

Officers for 1855.—C. L. Kiersted, of Cairo, President. C. L. Rushmore, Catskill; T. I. Miller, Greenville; Eben P. Smith, Durham; James P. Hawley, New-Baltimore; Geo. Robertson, Windham, Vice Presidents. Frederick W. Hoffman, Coxsackie, Secretary. W. S. Stoutenburgh, Jr., Cor. Secretary. Lewis Sherrill, E. W. Baker, E. G. Fox, J. P. Rouse, Stephen Hotch, Stephen Hedges, E. G. Bedell, Stephen Steele, Tabor Cook, Hezekiah Smith, Lucius Pond, Norman H. Gray and John Thompson, Executive committee.

Yours, &c.

F. W. HOFFMAN.

HERKIMER.

The Herkimer County Agricultural Society held its annual fair at East Winfield, on the 7th and 8th of September, 1854. Ample preparations were made by fencing in the beautiful green and grounds around the meeting house, the use of which was very generously tendered to the Agricultural Society for the occasion, free of charge, and which added much to the harmony and interest of the occasion; the weather being fine, an immense concourse of people were early on the ground the first day, arranging their stock and various articles for the exhibition. The floral tent and household department, although large and commodious, was filled to overflowing with rare specimens of handiwork; the culinary department was also well represented with bread, cake, jars of pickles, sweat meats, &c. There were 130 head of neat cattle on the ground, mostly of improved breeds of Durham and Devon, and 80 horses, and the usual number of sheep, swine, poultry, &c., all showing a decided improvement from the earlier exhibitions of the Society; evincing clearly an impulse given to all classes by the influence of the Society. On the second day, at the hour appointed, the church was filled to listen to an able and instructive address by the Rev. Mr. Pratt, of Winfield, after which the reports of the several committees were read, and their awards

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proclaimed. Although many thousands were assembled together, and often densely crowded, still nothing occurred to mar the universal quiet and pleasure, and all seemed to retire to their homes, with the impression that their time and shilling or dollar (as it might be) were well spent, and that an Annual Fair, of a well organized Agricultural Society, is a fit occasion for men, women, parents and children, to come together to see and be seen, for the mutual benefit of all.

The financial condition of the Society will be seen by the treasurer's report, here given.

A. L. FISH

Annual Fair to be held at Frankfort, September 27th and 28th.

Officers for 1855:—Col. George B. Judd, President, Frankfort; William Dygert, Secretary, Frankfort; John A. Riesbach, Treasurer, Ilion. Executive Committee: Daniel Mason, Frankfort; George W. Joslin, Frankfort; Col. James Foltz, Frankfort; Hon. Ezra Graves, Herkimer; Samuel Hawks, Columbia; Wm. P. Pruyne, Schuyler; Dean Burgess, Winfield; J. B. Ingersoll, German Flatts.

DR. Treasurer's report of Herkimer Co. Agr. Society.

1854.			
Sept. 7 and 8.	To amount of funds received for the year, exclusive of State apportionm't,		$611 50
CR.	By expenses, &c., paid,.....	$343 67	
	premiums paid,.....	224 54	
	balance in hand, ...	43 33	
			611 50
	To balance on hand,.....		$43 33

B. P. JOHNSON, ESQ.

JEFFERSON.

The Jefferson County Agricultural Society have expended nearly $4,000 to secure and fit up a lot of ten acres of land, one mile

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from the village of Watertown, for the favorable display of animals, vegetables, fruits, grain, implements of husbandry, carriages, domestic manufactures, &c. Two buildings of ample dimensions have been erected; the one for the exhibition of samples of grain, roots, vegetables, butter, cheese, &c.; the other, for the display of fruits, flowers, domestic manufactures, specimens of the fine arts, and fancy articles, in which our ladies take a lively interest, contributing by their presence and well directed efforts to the festivity and joyousness of the occasion, on the annual gathering of the masses engaged in the healthful occupation of extracting from mother earth the productions necessary for the sustenance and happiness of all classes in society: at the same time affording accommodations for an immense audience to sit comfortably and hear the annual address; the report of the committee appointed to travel over the county on a tour of observation, and report minutely the prospects of agriculture, the improvements observable, and such as are most needful and judicious to be made, the skill exhibited in the manufacture of butter and cheese, particularly examining the necessary dairy utensils, the order and cleanliness practiced in their use, the quantity made from each cow, the amount of land allotted each per annum, the mode of preparing and packing the butter, of curing the cheese, carefully witnessing the appearance and flavor when prepared for market, for on these being carried to a high degree of perfection, materially depend the pleasure and profit derived from the manufacture.

The 21st and 22d days of September were set apart for the annual fair and show. Of horses, there were 137 on exhibition; 139 head of cattle; 114 sheep; a fine display of swine and poultry, and of articles of domestic manufacture, farming utensils, vegetables, fruits, flowers, ornamental and fancy articles, there were 344 entries.

The large number of animals collected, awakened an unusual interest in the immense crowd assembled, all appearing satisfied and delighted with the exhibition The stock imported by Messrs. Hungerford and Brodie, consisting of Durhams, Ayrshires, and some superior sheep, were much admired. Ayrshires have not

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been known among us but a few years, yet are regarded as very hardy, easily kept in good condition, and showing marks of good milkers. Samples from our butter and cheese dairies, sustained fully the highest credit heretofore awarded them.

Although the drouth has been severe without example through this region, yet the exhibition of roots and vegetables was quite equal in quantity and quality to former years. The show of industry exhibited, the work of fair hands, was as usual, above all praise; to be properly appreciated, it must be seen, arranged as it was, to the best advantage, by the same hands engaged in its production.

Fruits, consisting of apples, pears, quinces, peaches, grapes, &c., were more numerous, finer specimens, and presented from more distant and different sections of the county, than any previous exhibition, giving unmistakable indication of increased desire and determination to cultivate approved and superior varieties.

The second day was occupied in the early part, by the plowing match, and the exhibition of matched and single horses in harness. Having prepared a good track on which to drive, the interest taken by the throng who witnessed it, was far beyond the expectations of the most sanguine. In the afternoon the people came to the large hall, and listened to a very able and appropriate address, eloquently delivered by William Tracy, Esq., of Utica, which fixed the attention, and drew forth the commendation and expressed thanks of a very large audience.

A. P. Sigourney, Esq., chairman of the viewing committee, read a very interesting report of the travels, observations, and awards of that committee. Reading reports of other committees the secretary, and paying the premiums by the treasurer, finished the proceedings of the most satisfactory cattle show and fair ever held in this county.

For the proceedings of our winter meeting, the award of premiums, report of treasurer, reorganization of the society under

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the general law, constitution adopted, and election of officers, I beg leave to refer you to the printed proceedings, annexed.

Yours, very respectfully,

WILLARD IVES, *Sec'ry.*

ANNUAL MEETING.

The meeting convened according to adjournment at the court house, December 23, 1854, Solon D. Hungerford, President, in the chair.

The committees on field and root crops entered upon the discharge of their respective duties.

The committees made the following awards:

Best winter wheat, 29 bush., 26 lbs. to the acre, Elias Hardy, Le Ray,	$3 00
Best spring wheat (Black Sea) 38½ bush., Albert Rice, Adams,	3 00
Best barley, 46½ bush. to the acre, Joel Graves, Hounsfield,	2 00
Second best barley, 46½ bush. to the acre, A. Tibbitts, Rodman,	2 00
Best acre of oats, G. W. Collins, Watertown,	2 00
Best qr. acre carrots, 702 bush. to the acre, O. A. Graves,	2 00
Best sample of apples (several varieties), J. M. Wilcox, Lyme,	2 00
Fine specimens of fruit, J. A. Sherman, Rutland, and Geo. J. Knights, Brownville, each	1 00
Beautiful specimens of Winter Nelis, Geo. Brown, Perch River,	Vol. Transactions.
Seed corn, Geo. J. Knights, Brownville,	Vol. Transactions.

Treasurer's report.

By received on subscription,	$147 50
proceeds of the fair,	951 90
received from the State,	183 00
received from sundry sources,	76 26
Total,	$1,358 69

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To paid out for expenses of the fair,	$177 90
paid towards liquidating debts against the society,	596 47
paid county corporation, highways, and school taxes,	6 70
T. H. Camp, for spoons left over from 1853,	24 50
paid for insurance, &c.,	6 70
paid out on premiums up to Dec. 24, 1854,	444 00
Total,	$1,256 27
Balance due society,	102 39

George J. Knight offered the following resolution:

Resolved, That the members of the Legislature from this county be respectfully requested to use their efforts to have a law passed for the better protection of our orchards and gardens from lawless depredators, and to prevent the destruction of our fruit, shade, and ornamental trees, grape and other vines.

Reorganization.

On motion of A. P. Sigourney, it was

Resolved, That this society reorganize under the general law, entitled, "an act to facilitate the forming of agricultural and horticultural societies."

Constitution of the Jefferson County Agricultural Society, adopted December 23, 1854.

Art. 1. This society shall be known as the Jefferson County Agricultural Society, whose object shall be the promotion of agriculture, horticulture, the mechanics, and household arts.

2. Any resident of the county who shall pay to the treasurer one dollar, shall be a member for the current year; shall be entitled to a vote for all offices to be filled at the annual meeting; shall be eligible to any office in the gift of the society; shall be entitled to compete for any one or all of the premiums offered by the board of directors, and shall be subject to all rules and regulations of the society.

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3. The officers of the society shall consist of a president, three vice-presidents, one to be located in each Assembly district; a secretary and treasurer, and a board of directors composed of twenty-five members, including the president, secretary, and treasurer; a majority of whom shall form a quorum for the transaction of business.

4. The officers shall be elected by ballot at the annual meeting, and shall hold their offices for one year, or until others are chosen in their room. A plurality of votes shall elect.

5. It shall be the duty of the president to preside at all meetings of the society and board of directors.

6. It shall be the duty of the vice-presidents to perform the duty of the president in case of his absence or inability to serve, in their order.

7. It shall be the duty of the Secretary to keep a record of all the proceedings of the society and board of directors, in a book provided for that purpose, and perform such other duties as shall pertain to his office.

8. It shall be the duty of the treasurer to receive all moneys belonging to the society, and disburse them on the order of the president countersigned by the secretary, and shall make a written report of the receipts and expenditures to the annual meetings.

9. It shall be the duty of the board of directors to make out and cause to be published, a premium list, appoint all sub-committees, judges, and superintendents; appoint the time for holding the annual cattle show and fair; make all rules and regulations for the same; and have a general supervision of the interests of the society.

10. This society shall hold an annual cattle show and fair at such time as the board of directors shall appoint, of not less than two nor more than three days duration.

11. The annual meeting of this society shall be held on the second Wednesday of January, annually, for the purpose of re-

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ceiving memberships, electing officers, awarding premiums on such grain and root crops, or other articles as may be presented for competition, and such other business as may properly come before the meeting.

12. The board of directors shall meet for the transaction of business on the third Wednesday of February, annually.

13. This constitution may be amended by a vote of two-thirds of the members present at any annual meeting, upon one year' previous notice in writing.

The constitution was unanimously adopted.

Officers for 1855.—President, E. S. Massey, Watertown; Vice-Presidents, Benj. Maxon, 1st Assembly district; Elias Sage, 2d Assembly district; Geo. Brown, 3d Assembly district; Secretary, A. P. Sigourney, Watertown; Treasurer, J. C. Sterling, Watertown; Board of Directors, S. D. Hungerford, Adams; Jason Clark, Alexandria; E. C. Church, Antwerp; J. B. Kirby, Brownville; J. M. Canfield, Champion; N. B. Williams, Cape Vincent; James Brodie, Ellisburg; Jabez Hunting, Henderson; C. C. Blodget, Hounsfield; John M. Wilcox, Lyme; A. W. Danforth, Philadelphia; John A. Sherman, Rutland; A. Tibbitts, Rodman; Joseph Fayel, Theresa; J. B. Johnson, Wilna; G. C. Bradley, Pamelia; Erastus Kelsey, Le Ray; C. D. Morgan, Watertown; Hiram Mitchell, Clayton; Wm. Rouse, Orleans; J. C. Ackley, Worth; Aaron Brown, Lorraine.

REPORT OF VIEWING COMMITTEE.

The committee on cheese and butter dairies, nurseries, kitchen gardens, and cultivated cranberries, beg leave to report: That they have examined eleven cheese and nine butter dairies, one nursery and three kitchen gardens, which constituted all the business presented to them for examination.

In our examination of cheese dairies placed in competition for premiums, your committee were pleased to find an increased yield per cow over that reported last year; of an excellent quality, and a general uniformity in quantity and quality, which, in rendering

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our awards, made the gradation somewhat difficult; but after a full discussion of the peculiar merits of the different lots, we came to a classification, satisfactory to ourselves, and hope it may be to the contestants.

It may not be amiss to state, that the cleanliness and fitness of the buildings, and the apparatus for manufacture, had some influence upon our decision, and are not to be overlooked or neglected by the manufacturer, if he would successfully compete with his neighbors in the market for this great staple of our country.

In the manufacture of cheese, much depends upon the buildings and apparatus used; and on our tour we found two cheese houses so well adapted to the objects of their erection that we recommend to the consideration of the executive committee the propriety of awarding a diploma to the owner of each for his very excellent cheese house. These houses are built of wood, of sufficient dimensions for the use of the dairies kept upon the farms; stand from one to three feet from the ground, with conductors to carry the whey to the pigs; well enclosed and painted, with blinds at the windows; ventilation through the floor covered with wire screens; rooms for manufacture and curing separate, and all kept in the best possible order. Their owners are Jeremiah Tuttle, of Rutland, and Hugh Heustis, of Rodman.

In examining the dairies of butter, your committee were disappointed in not finding a greater uniformity of salting. Most of the manufacturers, however, claimed to use one ounce of rock salt to the pound, but upon being questioned whether or not the butter and salt were uniformly weighed before being mixed, we as uniformly received a negative reply. "But we are so used to it we can guess near enough."

This guess work was not found among the manufacturers of cheese. Each dairyman had his thermometer, by which he tempered the milk of every cheese before he applied his rennet, and raised it to that temperature, which, from experience, had proved to be productive of the greatest quantity of cheese from a given quantity of milk. This caution and labor appear to be economy, and your committee are of opinion that, were our manufacturers

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of butter to weigh every churning when ready for salting, and weigh the salt also, and make the proportions uniform, the result would be the production of a better article than is now generally made. There is a diversity of opinion among dairymen as to the propriety or policy of working butter a second time before packing. It is the firm conviction of your committee, formed from their experience and the corroborative testimony of the best dairymen, whose products have been submitted to us this year for examination, that the best process is to perfectly free the butter from milk by rinsing with cold water as soon as churned; apply the salt immediately; work it no longer than it requires to secure uniformity through the churning, and then pack it.

The use of the butter worker we consider indispensable in good butter-making, and is a cheap, easy, and sure method of freeing the butter from milk in the rinsing process, and securing evenness of salt in working, and we have to express our astonishment that this labor-saving machine is not universally used by dairymen, and are of opinion that the imperfection of the machine tried, by many, has been the cause of its rejection. The roller used is improperly constructed for its office; it should be a lever in form, prismatical, or at least have one flattened side, with edges square or receding, in order that while in use during the rinsing, it may be turned edgewise to cut the butter to the base, forming a channel for the escape of the milk; and when used to "work in" the salt, the butter should be cut nearly perpendicularly, with the flattened side down, in order to crush to fineness any collections of salt or lumps that may, from carelessness, or otherwise, have been left in the salt or formed in the butter; and your committee most earnestly recommend its use to every dairyman, and particularly to every dairywoman, as it will lessen your labor one-half in preparing your butter, from the churn, for the tub, or use. Your husband or son can make a good one in one day, and paint it in 15 minutes; and when dry and cleansed will be ready for use; try the experiment and we will warrant it successful.

Your committee do not mean to be understood as not having examined dairies of excellent butter, for this would be a misrepresentation of facts. The butter examined was creditable to the

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manufacturers, and it is believed by your committee that there are constant improvements being made in the manufacture and preservation of this important article of luxury for which there is such an increasing demand.

The best method of manufacturing butter and cheese has been so frequently described by our predecessors, and so thoroughly by the viewing committee of last year, that we deem it inexpedient to repeat rules, so long stereotyped, but can say with the report of last year, "we found no butter not salted enough;" and unless a majority of the dairies examined by us possess more than one ounce of salt to the pound, that amount is too much, and we are fully satisfied that one pound of pure rock salt is ample for the salvation of twenty pounds of butter, and will insure a better flavor than the use of more. This opinion is sustained by those of the manufacturers of the dairies offered in competition for your premiums this year.

The best method of packing butter was clearly set forth in last year's report, and we refer to that document again from the fact that we discover one deviation from its recommendations which we deem essential to the preservation of butter when packed—that of covering it with a clean cloth dipped in cold water, and covered with damp salt, say half to three-fourths inch in depth. We found two dairies in which dry salt was used for covering, and the effect was plainly discovered in the flavor of the butter at some distance from the surface.

In awarding premiums upon butter and cheese dairies we assumed the prerogative of excluding one dairy of each from consideration, not for want of merit, for they were able competitors, and richly deserved premiums, but from the fact that their owners were the successful applicants for, and received first premiums on their dairies last year, and there was a greater number of dairies examined, truly meritorious, than your committee had premiums to award.

The only nursery offered for inspection is in the town of Ellisburgh, and belongs to Messrs Becker & Green. This nursery covers 5½ acres of ground, is perfectly free from noxious weeds

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and grass, and in its cultivation exhibits a taste and economy rarely met, one man, with the assistance of a boy 7½ days, having performed all the labor expended upon the field this season. Besides attending the fruit and ornamental trees, he has cultivated a large amount of garden vegetables for market, after supplying his family, some portions of which are perfected and sold.

In this nursery we found 93 varieties of apple trees, 12 do dwarf apple, 45 do cherries, 6 do dwarf cherries, 28 do plums, 90 do pears, 6 do gooseberries, 8 do currants, 2 do strawberries, 2 do raspberries, 5 do grapes, 30 do rose, 3 strawberry trees, a large variety of ornamental trees, among which are horsechestnut, mountain ash, black walnut, silver beech, willows, balsam of fir, red cedar and locust, and 180 varieties of flowers. To the persevering industry and skill of the proprietors, as well as that of the practical and faithful operator upon the premises, we feel bound to award the premium offered by the Society, notwithstanding its want of competition. Furnishing as this nursery does, a means at home by which our citizens can be supplied with trees, shrubs and flowers, from which to raise their fruit, or with which to beautify their grounds, your committee have no hesitation in recommending to the favorable consideration of our neighbors the propriety of purchasing from this nursery, believing the risk of transplanting less than from those imported into our county, many of which are lost in their war for acclimation.

The gardens visited reflected credit upon their owners and cultivators. Judging from the appearance of a majority of the gardens passed upon our tour, very many of our farmers have an undue appreciation of a good kitchen garden.

A due proportion of land set apart, seasonably and properly planted with vegetables, associated with a plat containing different varieties of currants, raspberries, gooseberries, blackberries and grapes, together with beds of strawberries, and *all properly tilled, will* and *do* afford a luxurious living, easily, handily and cheaply procured, and within the reach of every householder who has a deed, or the occupancy of one acre of land, and we are fully satisfied that no portion of land makes such liberal returns for the

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labor bestowed, as that occupied and *thoroughly cultivated* as a kitchen garden.

The garden first examined by your committee is upon the poor-house farm. This garden was, and has been for years, planted and cultivated by Jacob Shaver, one of the "inmates," assisted only by such of the unfortunately insane as he may be able to induce to work with him. We have to regret that Mr. Shaver has not received sufficient assistance in the cultivation of his large garden to enable him *successfully* to compete with others, notwithstanding he has raised the largest bed of the best onions, double the sweet corn, quadruple the carrots, as many beets and cabbages, as we found in any garden.

Your committee were here accompanied by Hon. Willard Ives, formerly President of this Society, and T. H. Camp, Esq., our late Treasurer, who, with us, by the politeness of the gentlemanly keeper, Mr. Parker, were shown every department of the poor-house, "from cellar to garret," including cells, and, notwithstanding "it was all on a washing day," (Monday) we were pleased with the perfectly uniform neatness that prevailed throughout this large establishment, and the general cleanliness and good health of its inmates, now numbering about 150, and it being their hour for dining, and seeing the large kitchen table covered with plates loaded with food to be distributed among those in different rooms, who were too aged and infirm to meet the family at table, we think we can safely say that here "nature's wants are well supplied." The harmony and good feeling which prevailed exceeded our reasonable expectations. We are satisfied that our county poor are properly cared for, and their keeper adequate to his task.

The other gardens examined were both truly meritorious. That to which we have awarded the first premium possesses all the requisites to constitute a good "kitchen garden," furnishes, for family use, in due proportions, the substantials and luxuries of life, and is in a high state of cultivation.

That to which the second premium is awarded is emphatically a good garden, most beautifully arranged and divided into beds

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and plats separated by walks and avenues, gravelled and bordered with ornamental shrubbery, interspersed with a great variety of fruit trees, apples, pears, peaches, plums and grapes, which please the eye and gratify the taste, but many of which are not primary requisites to constitute a *good kitchen garden*. We would like to see such a garden upon the premises of every farmer, but are of opinion that its cost would be too great to warrant an attempt at imitation. It exhibits unmistakable evidence of the cultivated taste of its worthy proprietor, and his ability to gratify that taste. It furnishes him, in rich abundance, the productions of a fruit and kitchen garden. This garden will well pay for a visitation.

We unite with our fellow citizens in thanksgiving to the Supreme Ruler of the Universe, for the preservation of the general health of the inhabitants of our beloved county,—that, while those of our neighboring counties and States have been visited by that desolating disease, the cholera, *we* have been signally spared from its direful ravages, although a few of those, never to be forgotten, have become its victims, from exposure in localities where this disease prevailed. May He who holds the destinies of Man in the "hollow of his hand," shield us from every harm.

Here, after announcing our awards, our report might with great propriety terminate—yet, we venture to indulge in a few brief reflections, upon subjects which necessarily came under our observation, during our pleasant and profitable tour.

From statistics obtained in different sections of the county, we feel authorised to assure you, that the productions of this year's labor and growth, notwithstanding the severity of the drouth, are ample for the sustainment, until another harvest, of our inhabitants, and all the stock that now wander upon our hills and plains; that there is a surplus of wheat, rye, barley and oats, which, with the numerous and large dairies of butter and cheese, and the surplus pork being fattened, when sold at the present liberal prices, and the *avails* deposited in our banks, will enable those institutions to "discount" to their customers with more freedom and less questioning of an impertinent character, as to what they want of the money.

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Notwithstanding the omission of the Society to offer premiums upon good farming (or farms), your committee could but *observe Farms* and *improvements* thereon, and are happy in the reflection, that the period is not far in the future, when the county of Jefferson will compare favorably with any of the older or more wealthy counties of the State, in point of agricultural improvements and wealth, when its area and geographical location are considered.

The system of under-draining, so frequently urged upon us, has been carried out to a demonstration, and its benefits are being realised by our industrious and persevering neighbor, Mr. Jenks P. Thompson, upon his farm, near "Talcot's Corners," in the town of Watertown. Mr. Thompson, by means of a blind drain, 180 rods in length, has converted a cedar swamp of 25 acres, covered with water, a great portion of the year, unfit for pasturage even, and perfectly worthless for farming purposes, into a fertile field, 12 acres of which have grown heavy crops of grain this season, and upon 8 acres now stands the best crop of corn seen by your committee during their tour; 13 acres of this swamp was in the process of being cleared from stumps at the time of our visitation. Thus has this swamp been changed from a nuisance upon a farm, into its most valuable and productive portion, and is a demonstration of what skill and perseverance will accomplish.

It will well pay a visit to see the improvements made upon this farm, for the comfort and convenience not only of its owner and family, but even the stock kept upon his farm. Water is conducted from a spring some 75 rods from his dwelling, by a cement pipe 1½ inch in diameter, and, by the use of about 20 rods of lead pipe, brought into his kitchen, garden, horsebarn and barnyard. Added to these, he has in his excellent cellar an "overshot wheel," to which is attached machinery for churning, grinding tools, and sawing his wood. This wheel is propelled by a stream of water, diverted from its natural channel, and is used at pleasure. In view of these and many other improvements upon the farm, not mentioned, and particularly upon the ditching or draining, we recommend to the Executive Committee the award of a premium of five dollars to Mr. Thompson.

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We were pleased to see so many barns with roofs based by conductors of the water that falls upon them to a cistern below, from which ample supplies are being drawn for the stock upon the premises, particularly at this season of drouth and scarcity of that indispensable article, when it is so much needed. We can but urge upon all who are not favored with a good supply of running water upon their farms, this economical method of securing water for their stock, equal to the emergencies which so frequently occur.

We invite your attention to another evidence of improved taste exhibited by many farmers in different localities. We allude to, the ornamental trees and shrubbery that surround their dwellings, and the thrifty maples, planted upon the margins of the streets, through their premises. We refer you to a few samples of the effect of the adoption of this latter custom upon the appearance of the farms where they exist, on the road from this village to Watertown Center; that in Rodman, leading through the farms of Messrs. Sill, Harrington, Parker and Green; that in Watertown and Rodman, passing the late residences of Henry Isham and the late Deacon Smith. These, and many others, are worthy of imitation by all who would give "even to Nature a grace," and we cordially recommend this custom to the favorable consideration of all.

The uniform neglect of overseers of highways to "see that the laws be faithfully executed" relative to the destruction of noxious weeds upon our roads, makes it incumbent upon those owning lands through which they pass, to perform this duty.

In travelling through the county you can determine, *in very many instances*, the extent of a man's farm upon the street, by its cleanliness and freedom from these intruders, marking the limits *more plainly* than "a stake and stones." Where these weeds and thistles are suffered to thrive in the streets *undisturbed*, you will generally find the streets lined with brush, logs and old rails, yards about buildings ornamented with the remains of old farming tools, lumber, &c. You will observe those tools not thrown aside standing unhoused, and the buildings exhibiting an appear-

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nice corresponding with this want of economy. This is all wrong, and we indulge the hope that, upon reflection, we shall all see that our interest demands a removal of these "noxious weeds," even upon the highway, and as a necessary consequence the nuisance will be abated.

The majority of your committee do not feel satisfied to close without mentioning their visit to the orchard of apple, peach and pear trees planted and owned by one of our number, Mr. Daniel R. Gill, of Henderson, whose modesty will not permit him to speak in this part of our report. This orchard is composed of 4,000 trees, and covers 50 acres of land, which, for farming purposes, is comparatively worthless, being principally steep side hill, and the earth so thoroughly filled with limestone as to render it impossible to plow three-fourths of its surface. Every tree in this extensive orchard is cultivated fruit, of seven years' growth, in fine condition, properly pruned and "cared for"—trees purchased and planted at an expense of $1,000—a wise disposition of surplus funds, and an economical use of otherwise nearly unavailable lands.

A ramble through this thrifty and extensive orchard, in company with its intelligent and industrious owner, will well pay any man for a visit to Henderson's Harbor, where it is situated.

The system of public schools of our State, adopted as far back in our history as 1812, and varied from time to time to meet the wants of an increasing population, to the present date, together with the liberality of our Legislatures in their appropriations for the education of all classes of children and youth, are just subjects of pride to every philanthropist of our State, and in traversing the county, we were happy in observing the increasing appreciation of the system by our inhabitants, exhibited in their attempts to render it effective by the erection of suitable school houses, for the accommodation of the youth of their vicinity.

There, however, still remain many antique buildings, placed at the sides of the road and in the highway, used as school houses, which do not well comport with the exhibitions of wealth by

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which they are surrounded, and are evidence, not to be misunderstood, of a want of interest by the inhabitants in the future well-being of society. We cannot forget one located near "Champion Huddle," so called, at forks of roads at top of a hill. Another in Henderson, about two miles south of Salisbury's mills. We do not overlook the fact that there may be, and probably are, residents of these and many other districts, similarly situated in respect to a suitable school house, who would gladly build, but being in the minority are thus kept in rear of the spirit of the age, and suffer the mortification of a just pride every time they see a non-resident of their district pass the place where they are *forced* to educate their children.

Who that has an eye to see or a heart to feel can look upon our common schools with indifference? Here *all* can congregate and acquire a wealth more valuable than gold—*the means of becoming useful to themselves and to their fellow men.* We call upon all lovers of their children, and all lovers of their *country* and its institutions, to look to and encourage these nurseries of science. Make the spot upon which these future statesmen and matrons assemble for a preparation for business life, convenient and inviting; surround your commodious, well ventilated and well seated buildings with sufficient yard for their innocent diversions, and ornament it with an agreeable variety of trees.

And to the parents and guardians of our children and youth let us say, *educate your children; educate* them if you would do your duty to *yourselves*, your *children*, your *country*, or your *God*.

A. P. SIGOURNEY,
HART MASSEY,
N. B. WILLIAMS,
T. B. TOWNSEND,
DAN. R. GILL,
Committee.

JEFFERSON CO., *Sept.* 22, 1854.

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CROPS.

Willard Ives, Esq., Secretary Agricultural Society, writes us:

WATERTOWN, *December* 22, 1854.

B. P. JOHNSON, Esq.:

Dear Sir—I am in receipt of the circular sent by your society, inquiring in reference to the agricultural productions of Jefferson county.

With an area of 700,000 acres of land, nearly two-thirds, or 450,000 acres, of which are cultivated, there is now near 90,000 acres under tillage by the plow, leaving in grass 360,000 used for pasturage and meadow. The amount tilled for field crops is some 10 per cent. greater than the year previous, owing to successive seasons of drouth, which has injured the roots of grass in fields that have been seeded for several years, requiring the use of the plow; also preventing the growth of grass seeds in many fields that have been stocked down, demanding the continued use of the plow.

This succession of dry seasons has reduced materially farm productions. The sum total of bushels of grain raised is very likely equal to last year, or to an average for several years past, because of the increased breadth sown. The reduction falls heavily upon the proceeds of dairy and farm stock. The number of cows remains nearly the same (about 50,000), but young cattle, colts, and sheep are diminished nearly one-half within the last three years.

The proceeds of the dairy will be reckoned as the chief product of the county, and at present the only very important one sent abroad for a market, being mostly shipped directly for New-York city; quantity much the same as last year; quality sensibly improving from year to year, as may be inferred by reference to the records of the State Society for the last three years. From the best estimate within reach, over 3,000,000 lbs. each of butter and cheese have been manufactured the present season. A fair estimate will give about 200,000 acres of land for the use of the cows, or four acres each per annum.

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Horses do not vary much in numbers from last year, or two or three previous ones—near 15,000 used and kept for all purposes.

Oxen are greatly reduced within the last few years, horses having taken their place in performing the work of the farm.

Some 30,000 sheep still remain, mostly in small flocks—kept for the butcher as much as for wool.

For the support of horses, sheep, and neat stock (other than cows), 160,000 acres are allowed, which with stalks, straw, and some grain, comprises the amount consumed by our animals. They are now better fed and protected from cold and storms than in former years, but as a whole, have suffered quite considerable diminution in numbers in each year for the last three years.

Increased attention is given to preparing the soil for the reception of seed, to the selection of choice varieties, and to securing its introduction at the proper season, as late-sown grain has suffered more from drouth of late years. More wheat has been grown the present season than in any former one, mostly spring, on account of winter varieties being more subject to injury from the wheat midge, and effects of frost, perhaps reaching the amount of 300,000 bushels. Barley was sown quite extensively and gave a fair return—from 250,000 to 300,000 bushels. One establishment in the village of Watertown is doing an extensive business in the manufacture of pearl barley. A large portion of the crop is sent to Albany and New-York cities for market. Oats, on account of drouth, have not yielded more than half an average crop, and fewer acres sown than three years ago. Corn has produced about one-third an average yield, having suffered most from drouth among the tillage crops, and more severely than in any former year since the country was settled, from the same cause.

There is a lamentable absence "of scientific attention to farm cultivation" apparent in all parts of the county, although in this respect, I think, there is noticeable a manifest improvement in many neighborhoods. Agricultural books are read more generally by farmers, and their attention is much awakened to the importance of sustaining periodicals devoted to diffusing what is

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now known and is being learned in the system and practice of husbandry. In this age of progress in science and arts, it is hoped that agriculture will not be allowed to fall behind in its onward march to the highest point of attainment. Its importance demands the increasing and persevering efforts of all engaged in this most worthy and time-honored calling.

Drainage is receiving some, though not as yet deserved attention. Its advantages are very apparent, not only in freeing the soil from surplus water on the surface, which of itself destroys the healthy growth of vegetation, but also in preparing the surface to better withstand the effects of drouth, in lightening and mellowing the soil, in fitting it for earlier cultivation and reception of seed in the spring, and receiving more fully the effect of the heat and light from the rays of the sun. Open drains are most used, but blind or under drains are being constructed to some extent with highly satisfactory results.

In these close times for money, farms do not bring the same prices as readily as two years ago, but are considered worth about the same, and cannot, except in some cases of necessity to sell, be bought for less money.

Hoping these imperfect answers to some of the interrogatories may aid you in forming a correct estimate of our success in practical agriculture,

I remain, as ever, your obedient servant,

WILLARD IVES, *Secretary.*

LEWIS.

Our county fair was held in the village of Martinsburgh, on the 27th and 28th days of September, 1854. The weather being exceedingly fine, the friends of agriculture were in attendance from most parts of the county in large numbers, and the exhibition of neat cattle, horses, &c., was highly creditable to the farmers of the county.

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The ladies' department was, as usual, well supplied with their handiwork, and showed an increasing interest to excel all other departments of the fair. In the mechanical department there was one harness exhibited which attracted general observation, was an honor to the maker, and would have done no discredit to any State fair.

The committee on dairies report that the competition on dairies of cheese has been highly respectable, both in number of entries and quality of article exhibited, and the high reputation which Lewis county has heretofore acquired as a dairying region, has, in the opinion of your committee, been amply sustained; and the great uniformity in quality which was found to exist in most of the dairies, your committee would particularly recommend to manufacturers as a point to which they should direct their highest attention.

The following premiums were awarded on cheese: 1st premium, Ela Merriam; 2d, H. D. Noulton; 3d, A. J. Merreness; 4th, Edwin Pitcher.

The competition on butter has been much less than on cheese; but most of the dairies your committee have been permitted to examine, they found to be of remarkable fine quality, and considering the unfavorable season for making butter, entitles the manufacturers to the highest credit. Premiums awarded on butter: 1st, to Wm. Phelps; 2d, Sanford Coe; 3d, David Rugg; 4th, Alexander Bingham.

H. D. NOULTON'S MODE OF MAKING CHEESE.

We first get the milk to a temperature of 80 degrees, then put into the milk annatto enough to give the cheese an orange color, and add rennet enough to bring the cheese in one hour, after which cut the curd and let it stand ten minutes; then carefully work it by hand until as fine as cherries, when gradually raise the temperature to 90 degrees, at which let it remain half an hour, and then raise the temperature to 104 degrees, and keep it at that, two hours in the summer and three in the fall; after which dip it into a sink and let the whey strain off, constantly

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stirring the curd to keep it from packing, and to work out what few remaining pits is in the curd. We put in two and one-half pounds salt to the 100 pounds cheese. When cool it is put into the hoop, where it sustains a pressure of 4,500 lbs., (incredible as it may seem.) We subject it to this unusual pressure to extract every drop of whey. It is left in press until night; is taken out, bandaged, turned, put back, and left till next morning.

WM. PHELPS' MODE OF MANUFACTURING BUTTER.

We set the milk in pans on a rack, in a dry cool room, until it thickens on the bottom, then skim off the cream; the quantity of sour milk we take off with the cream depends on the weather, skimming deepest when the milk sours the quickest. Churn every morning by dog power, with dasher churn. Occupies on an average three hours time. After freeing the butter from the buttermilk, apply one ounce of Ashton salt to every pound of butter. Set it in a cool cellar for twenty-four hours, when it is worked over, and then packed down. When the tub is full, cover the top with a cloth, with a quarter of an inch of fine salt, and keep the whole covered with strong brine.

STATEMENT OF NORTON CLARK'S CORN CROP, TURIN.

Raised from one acre, ninety-five bushels and forty pounds of corn, it being of the yellow, eight-rowed kind, on land which had been in meadow about ten years. Twenty loads of stable manure was drawn on to said acre of land and turned under; well harrowed, furrowed, and planted in rows three feet apart each way; manured in hill with hog manure, and hoed well three times.

The annual address was delivered by James Merriam, Esq., of Leyden, and was listened to by a very large and attentive audience, abounding in practical knowledge, sound sense, and ready wit, which reflects much credit to its author, and was calculated to do much good for the future prosperity of the society.

The winter meeting was held on the 28th day of December, in the village of Turin.

Officers for 1855.—Sanford Coe, President, Constableville; Wm. C. Miller, James R. Treat, Harrison Blodget, Gilbert E. Wool-

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worth, David H. Higby, George Woolworth, John Benedict, D. A. Stewart, John M. Parris, Seymour Green, Vice-Presidents; Charles G. Riggs, Rec. Secretary, Turin; Chas. D. Adams, Cor. Secretary, Lowville; M. M. Smith, Treasurer, Martinsburgh; A. J. Merreness, Albert Foster, Edmund Baldwin, Lewis Stephens, John D. Lord, Executive Committee.

CHAS. G. RIGGS, *Secretary.*

LIVINGSTON.

The annual fair of Livingston Co. Agricultural Society was held at Geneseo, on the 18th and 19th of October, and was attended on both days by a great crowd of exhibitors and spectators. All seemed gratified and zealous to examine minutely all kinds of stock and farming implements, and to inform themselves respecting the manner of rearing stock, most approved by those who have made experiments, as well as to the various implements best adapted to general use. The exhibition of cattle and sheep was conceded by all to be superior to any former one. There was less competition in the exhibition of horses than last year. The quality of the few exhibited elicited the commendation of all present. The ladies exhibited a great variety of ingenious specimens of useful and ornamental articles of their own manufacture. The exhibition of fruits and vegetables was commendable, considering the late date of the fair and the effects of an unusual drouth preceding it. The show of poultry was highly gratifying to all lovers of the feathered tribe. Our premium list was largely increased this year, and an admission fee was charged for the first time. Much inconvenience was felt by all, on account of the destitution of permanent fixtures for the protection of articles exhibited. It is to be hoped, that soon the Society will provide permanent and convenient buildings, to protect from injury by the elements, all such articles.

It is believed, that at no fair since the organization of this Society, there has been a deeper interest manifested in the progress

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of agriculture in all its various departments. In the afternoon of the second day premiums were awarded and the following named gentlemen were elected

Officers of the Society for 1855:—President, Aaron Barber, Avon. Vice Presidents: Chas. Colt, Geneseo; Geo. W. Root, York; Richard Peck, Lima; Treasurer, Edward Hammett, Geneva; Secretary, Joseph Kershner, Geneva; Managers: Chas. S. Shepard, Avon; Henry Simpson, Caledonia; Hector Hitchcock, Conesus; D. H. Bissell, Geneseo; Chas. Goheen, Groveland; Bartlett Cone, Leicester; Z. Longyear, Lima; Robert Dixon, Livonia; O. D. Lake, Mount Morris; Alonzo Budner, North Dansville; Moses Barron, Nunda; Gulielmus Wing, Portage; William Scott, Sparta; Harvey S. Tyler, Springwater; Charles McNair, West Sparta; Jehiel Freeman, York.

C. R. BOND, *President.*

MADISON.

The Society has pursued its course during the past year with success and fair prosperity. During the previous season a large and substantial building had been erected, and ample grounds enclosed at Morrisville (where the fairs were located for 5 years), at a large expense, leaving a considerable debt for construction against the Society. Notwithstanding this embarrassment, its action has been on a larger and more liberal scale than in previous years, and it has received a liberal support from the public. Its fair on the 19th, 20th, and 21st of October, was attended by a very large concourse, though the weather was unfavorable during the first two days. The exhibitions of horses and cattle were very large and of excellent quality; the cattle especially, being of the first rank and excellence, both among pure bloods of the Devon and Durham breeds, and grades or native stock. An excellent show of other domestic animals was on the ground, and the Floral Hall contained an interesting display, in spite of the storm which prevented the arrival of many of those who designed being exhibitors in that department.

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The income of the Society for the year has been:

From memberships, and tickets sold at the fair,.....	$771 00
the State appropriation, ...	120 00
	$891 00

This is a large increase on the income of the Society in its earlier years.

After paying all premiums and expenses, with about $120.00, for improvements of buildings, the treasury contained a handsome balance, to be applied toward the reduction of the Society's debt. This will soon be entirely discharged, when a large income will be applicable to the improvement of the fairs, to a liberal list of premiums on all the products of our domestic industry, in its agricultural, mechanical and manufacturing branches, and the general, more energetic action of the Society.

Col. Charles D. Miller of Peterboro, was elected President of the Society, in place of S. P. Chapman, Esq., who retired after two years service.

I remain, Yours very respectfully,

LEDYARD LINKCLAEN,

Rec'g Secretary.

MONTGOMERY.

CROPS.

Sir,—Your note asking information with regard to the average yield per acre of the following crops, I will answer to the best of my knowledge. We have suffered from drouth for the last three years, but I think more severely the present year than either of the others, which will account for our light crops, in a measure; there are farmers in this county, as well as in others, who would grow better crops if they would adopt an improved system of farming. Wheat, considerable sown, some fields would yield probably twenty-five bushels per acre, on an average fifteen bush.; indian corn, twenty-five bush.; oats, thirty-five bush.; barley,

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very little grown of late years, there were a few fields in the neighborhood that would average probably, twenty bushels; rye, scarcely any grown; buckwheat, fifteen bush.; hay, one and a half tons; potatoes, one hundred and fifty bush ; peas and beans, very few grown; flax, eight bush.; fruit, of fair size and quantity, but roting more than usual this fall.

I think, upon the whole, I am safe in saying, that our county (Montgomery) would have produced full one-third more but for he drouth. Some fields of wheat, that bid fair for a good crop in the spring, were almost entirely destroyed by the wheat midge. I think we would have had one-third more wheat in the county, but for the above cause.

We find that drained lands have a better crop, in either wet or dry seasons, than undrained. Our farmers, upon the whole, are taking more interest in their business from year to year; they are more willing to read, and adopt the labor saving machinery, which I think has a tendency to increase the interest as well as the profits of farming.

Yours respectfully,
CORNELIUS PHILLIPS.

Officers for 1855.—William Knox, of Canajoharie, President; James Butler, of St. Johnsville, Secretary; James Lansing, of Fonda, Treasurer.

MONROE.

I am in receipt of your letter requesting report of Monroe County Agricultural Society. Not knowing that it was my particular duty to make this report, I shall not be able to do justice to the subject. Monroe county is well worthy of a place in these reports among her sister counties. Bounded on the north by Lake Ontario, cut in twain by the renowned Genesee, with a soil unsurpassed by any county in this State (I suppose this means also any in the United States,) in its ability to grow wheat, corn, hay, or any other natural product of the northern states, certainly none of her sons need be ashamed of her. That she has yet ac-

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complished as an agricultural district, all that is within her ability, I do not for a moment believe. I know she raised more wheat (by the last census) than any county in the United States, yet I believe she is capable, by thorough farming, of nearly, if not entirely, doubling that yield.

The soil of the county, at least a large portion of it, is naturally adapted to the growth of wheat. Limestone, either on the surface or underlying, is found in great quantities; also, gypsum, large quantities of which are annually manufactured to supply the home and foreign demand. Wool-growing receives a good deal of attention in the county, and quite a large number of fine sheep are owned; but, on the whole, I think wheat-growing is fast ousting wool-growing, the high prices of the former for the last ten years, greatly assisting in the process. Besides, it is very doubtful whether wool-growing will pay on lands worth from $50 to $125 per acre; it can only be raised incidentally.

We have not as yet introduced the improved breeds of cattle to any extent; some of the eastern towns of this county, bordering on Livingston, have begun to avail themselves of the opportunity afforded by the latter, to improve their stock. It is rather singular, that farmers, who always have an eye to their interests, should neglect this great source of profit. The difference between keeping an animal of the ordinary breed, and one of the improved breeds, cannot be very great, if any, whilst the one will bring, in market, two or three times what the other will. But we are looking forward to advancement in this respect. Although we are not raisers of cattle to a great extent, and it may not be for our interest so to do, to the neglect of wheat raising, still what cattle we do keep, ought to be the best.

Some fine horses are raised in this county. There are but few men in this world, who are not susceptible to beauty as exhibited in a well proportioned and elegant horse; and were this not so, interest, as well as necessity, compel the farmer of this region to seek for the best horse. To plow our tenacious soil, to do all the heavy work incident to wheat-growing, requires horses of great strength and weight. There is also growing up among us, a de-

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sire to supply the increasing market with fast horses, and superior carriage horses. Increased attention and skill, directed to improvement in rearing the horse demanded, would bring thousands of dollars in the pockets of the farmers of Monroe county; and we believe this will be done, that in fact, a new interest is growing up among us on this subject.

Our annual fair was held in the city of Rochester, on the 22d and 23d of October last. A very creditable show was made of the products of the county. The show of agricultural implements and inventions is always large at our exhibitions. The mechanics and dealers in agricultural implements, are behind none in the State in ingenuity and ability to meet the growing wants of the farmer. To speak of none other, our reapers are second to none on the globe.

Our show of fruits and dairy products, and the specimens of "handiwork by the fairer part of creation," was held on the same ground of the fair of the day previous, in one of those tents, so admirably suited to the purpose, made and erected by a well known citizen of Rochester; this part of the exhibition drew an immense throng from city and country, and elicited the praise of all.

But we labor under one great disadvantage as a society, viz: we have not yet arrived at that state of manhood which enables us to take on that unmistakable evidence of permanence and peace, a right to about eight or ten acres of soil. Owing to this want, at our last annual meeting, we voted to hold our next fair in the town of Ogden, instead of Rochester. But we hope soon to overcome this difficulty by purchase or lease of a suitable piece of ground, in the vicinity of Rochester, for the purpose of holding our annual fairs.

TREASURER'S REPORT.

Receipts:

Balance from 1854,	$283 82
Received from members, &c.,	667 21
State appropriation,	194 00
	$1,125 03

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Expenditures:

To premiums and bills paid, ...	$1,000 42
Balance on hand, 1855, ...	124 61
	$1,125 03

A. E. HARMON, *Sec'ry.*

F. P. Root, Esq., President Monroe Agricultural Society, writes:

SWEDEN, *Nov.* 24, 1854.

B. P. JOHNSON, Esq.

DEAR SIR,—In answer to your circular sent me, making inquiries of the products of our county the past season, the state of agriculture, &c., I would make the following reply:

My estimation of the aggregate yield of crops may be very imperfect, but it is made upon my best judgment, after making inquiries of reliable farmers in different portions of our county. The average yield per acre of wheat I estimated at 14 bushels; Indian corn, 22 bushels; oats, 36 bushels; barley, 20 bushels; buckwheat, 8 bushels; hay, 1½ tons; potatoes, 60 bushels; peas and beans, 12 bushels; flax and rye, none; fruit, a good crop. About 100,000 barrels of apples have been exported from our county, which will include nearly all, except home consumption, for the year. Large quantities of peaches, pears, &c., have also been exported.

The diminution in crops by the drouth has been, in corn buckwheat and potatoes, about one-half; other crops less. The wheat crop was much injured by the spring weather, by severe freezing and thawing. On all fields lying flat, and not well drained, the wheat plants were so much injured that some died when warm weather came, and all were made late and sickly in growth, which made the crop a ready prey to the wheat midge or Hessian fly, which nearly destroyed it. On dry and more elevated lands the crop was less injured by either cause. In all the northern portion of our county the wheat midge has been very destructive; the crop is not more than about one-fourth an average yield. In the southern

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part the injury is but trifling. The injury sustained in our county by this insect would amount to nearly one-third of the wheat crop, which, together with the injury done by the unfavorable weather in spring, has reduced our crop to but little above half the amount of the previous year. A much less breadth of land has been sown in wheat this fall, in expectation of the destruction of the crop next year. Our best wheat lands have yet suffered comparatively but little, still we have no evidence from the past that any escape will be found in future. The wheat midge first began its work here in the northern part of the county some four years since, which has continued to increase and spread south and west regularly from year to year. Some observing men have predicted that the fly will do no damage to our crop next year, as the warm weather in September and October has hatched the fly, and that there will be no larvæ to produce the fly for next season.

Of thorough drained soils I have had but little chance of observation. But little under-draining has been done in our county. What drained land I have on my farm has produced well the past season. We have but little springy land, so none but flat lands need drainage, which, when brought under cultivation, are usually drained by surface drains, a substitute for a thorough system.

Our county is improving in agriculture. There are but few, if any, sections of our country where there is more enterprise in farming, or where land is better cultivated than in Monroe county. The idea prevailed some years since with a large portion of farmers that they could not afford to hire labor to improve and cultivate their land thoroughly, but this false notion does not now prevail; all are satisfied that the most thorough farming pays best.

Yours respectfully,

F. P. ROOT

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NIAGARA.

The annual fair of this society was held at Lockport, on the 4th and 5th days of October. For three years last past, it had been held in towns remote from the county seat. Its return this year to a more central locality has been marked by a decided improvement in the exhibition, and a livelier interest in the occasion. This improvement is not, however, to be attributed solely to a more favored locality, but in a great degree, also, to the exertions of the president of the society, Hon. Washington Hunt, who, having retired from the turmoil of political life to the quietude of a beautiful farm, in this vicinity, delights in competing with his brother farmers in the products of the soil.

The cattle show was held on the 4th, a raw uncomfortable day. The day preceding, one of the most inclement storms of the season prevailed, which prevented many of the stock growers who reside in the distant towns, from driving in their animals. Notwithstanding the unfavorable weather, there was a creditable display. The horses and colts exhibited, were, with few exceptions, very fine, and would have done credit to any county in the State.

The majority of the animals entered were of the Morgan Black Hawk breed. To these were awarded most of the premiums in those classes where beauty of form and action are the points which govern. The first premium on thorough-bred stallions, was awarded to Loveland Sharp, of Lockport, on a noble animal of the Morgan breed, recently imported from Vermont by an association of gentlemen, at an expense of something over $2,000. For several years an increasing interest has been manifested by our farmers in rearing the best breeds of horses, and a great improvement in this kind of stock has been the result.

The exhibition of cattle was fair, but by no means a good representation of the stock in the county.

We had a good show of fine wooled and coarse wooled sheep. No premiums being offered for medium grades, none were exhibi-

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ted. The Leicesters and Merinos bore off the premiums in their respective classes. The rearing of good sheep in this county is receiving increased attention; induced, no doubt, by the high prices that wool has commanded within the last three years. It is a mooted point among our farmers whether coarse wool and large carcass, or fine wool and small size is the most profitable.

Swine were well but not uncommonly represented. The first premiums were awarded to the Suffolks.

The plowing match came off on the 5th. This trial of skill among plowmen was one of the most interesting features of the annual exhibition, and was witnessed by a numerous concourse of spectators. In the improvement in plowing which results from these contests with the "plowshare," the beneficial influence of an agricultural society is manifest. In addition to the inducement of a pecuniary reward and the excitement of a personal contest, there is no mean honor to be won in success, on an occasion so public. The plowing match thus possesses all of the elements of interest of the Olympean games and gladiatorial contests, with none of their concomitant horrors, and with the additional recommendation of being practically useful.

The exhibition of domestic manufactures and the various products of the farm, was held at the Court House, the high winds preventing the erection of the tent. Thousands of spectators were present. The season having been peculiarly unfavorable to the staple crops of the county, it was not expected that there would be so great a competition in products of the soil as upon many former occasions; but we were disappointed. The exhibition in this respect, was fully equal to any former fair. As a wheat growing county Niagara fully sustained her character on this occasion. Moses C. Crapsey, of Lockport, took the first premium, his crop from ten acres averaging a fraction less than forty bushels. Isaac C. Lockwood, of Newfane, took the first premium in the second class, his crop from seven acres averaging forty-four bushels, without extra pains in cultivation. The show of domestic manufactures was unusually fine. In no department of the exhibition was there so fine a display as in that of agricultural implements, and in no other department were the improvements

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of modern agriculture so apparent as in the ingenious machines for lightening and facilitating the labor of the farmer, which were collected together and displayed for inspection to the thousands who were present.

An able address was delivered the afternoon of the 5th by the President.

The amount of money received and paid on account of the society, is as follows:

Received from the State Treasurer,.....		$93 00
do donations and sale of members' tickets,..		436 97
		$529 97
Paid cash for premiums,.....	$352 00	
do expenses, ...	128 18	
Awarded 28 vols. of Transactions of State Ag. Society, at $1 per volume, not yet received,		
		$480 18
Balance on hand,.....		$49 79

Of the above amount, $12 is in bills on broken banks. There are yet some unsettled claims against the society outstanding.

A. W. BRAZEE, *Secretary.*

A. W. Brazee, Secretary Niagara Agricultural Society, writes as follows:

LOCKPORT, *Dec.* 29, 1854.

DEAR SIR,—Yours of the 23d and 28th of October last, respecting the agricultural products of Niagara county, were referred to me by the Hon. W. Hunt.

I have arrived at conclusions by averaging the opinions of practical farmers residing in different parts of our county. According to this basis of calculation the yield per acre of the several crops you refer to, harvested in our county this year, is as follows:

Indian corn, 31 bushels; buckwheat, 13 bushels; peas and beans, 25 bushels; oats, 30 bushels; grass, 1 5-16 tons; potatoes,

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104 bushels. There has been an average crop of fruit. Indian corn was diminished by drouth one-fourth, oats, one-fourth, buckwheat, one-half, grass, one-fourth, potatoes, one-fourth, peas and beans, one-sixth, and fruit to some extent.

Wheat is the staple of our county. The estimated number of acres devoted to this crop, and harvested this year, is 62,017. The average per acre was 15 bushels; the quality first rate. The flour manufactured from wheat raised in this county always commands the highest market price in New-York. The diminution of the crop by drouth, the fly and weevil (midge) was about one-third; the larger part of the decrease is attributed to the midge.

The state of farming in this county is good ordinary; it is improving. The number of acres under tillage is increasing, to what extent I am unable to state. Animal stock is on the increase. The most popular of the improved breeds of horses are the Morgan Black Hawks. Among improved horned cattle Durhams are most numerous. The common breeds of both horses and cattle are generally kept and used. Wool growing is receiving increased attention from year to year; for coarse wool, the Leicesters and Bakewells are preferred, and merinos are most numerous among the fine wooled.

Scientific farming is practiced by a few of our best agriculturists, and is gradually winning its way to favor among intelligent farmers.

Drained lands are less affected by drouth than undrained. Drainage receives attention to quite an extent, and is absolutely necessary to the successful cultivation of the flat clayey soils that form the southern portion of our county. The common open drains are in general use. Covered drains are being introduced with advantage.

Farming lands are held at prices varying from $25 to $100 per acre; few farms, however, can be procured at the lower, and still fewer at the higher figure. The tendency is to fall from present prices, owing to the destruction of the wheat crop by the wheat midge this year.

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The principal market for farm produce is at Lockport; there are also at Middleport and Gossport, on the Erie canal; at Tonawanda, Lewiston and Youngstown, on Niagara river, and at Wilson, Olcott and Somerset, on Lake Ontario, good markets for wheat and wool, where the highest market prices are paid. In the summer and autumn Niagara Falls and Niagara city are excellent markets for poultry, and the produce of the garden, dairy and orchard.

Very respectfully yours,

A. W. BRAZEE.

ONEIDA.

The fourteenth annual fair of the Oneida Co. Agricultural Society, was held at Utica on the 19th, 20th and 21st day of Sept., 1854. The attendance at this fair was large and in several departments not inferior to many of its predecessors. The weather, for some time previous to the 19th, was rainy and windy, and during the entire exhibition unpropitious. A large building, designed to accommodate the manufacturers, domestic and horticultural departments, was so much delayed in its finishing by the bad weather, as to discourage many who intended to exhibit, and the arrangements of this building, as well as the display in the departments, were quite unsatisfactory. In the hope, however, that this large and very commodious structure, erected by one of our citizens, may serve the Society better at a future exhibition, and answer us instead of "permanent buildings belonging to the Society," in part at least, and enable us to do away with dilapidated cloth tents, we were less disturbed by the inconveniences, than we otherwise should have been. The display of horses, cattle, sheep, swine, &c., was a fine one. The large number of blooded animals, and the superiority of the grade stock on exhibition, indicated increasing interest in this branch of agricultural pursuits, among our farmers.

An address was delivered before the Society, on the last day of the fair, by B. P. Johnson, Esq., Secretary of the State Agricul-

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tural Society, which was listened to with intense interest, and which, from its practical character, left an abiding impression upon all who heard it. A copy of the address was requested for publication, and it is regretted, that the author was unable to furnish a copy, so that it might have had a general circulation through the country.

The following is an abstract of the report of the treasurer, for the year 1854.

Balance from last year's account,		$747 36
Membership, and admission to fair,		610 57
Voluntary subscription,		104 50
From the State,		255 00
Use of Society's tent,		20 00
		$1,737 37
Paid premiums awarded,	$863 00	
printing, services, labor, lumber, grounds &c.,	532 62	
Balance to new account,	343 75	
		1,737 37

Many of the reports of the judges were interesting and valuable. One of these, upon *Orchard Culture*, prepared by Prof. Edward North, of Hamilton College, is annexed hereto, believing it will be regarded as deserving a permanent place in the annals of State agriculture.

The following persons were elected at the annual meeting, in January, as

Officers for 1855:—President, H. H. Eastman, Marshall. Vice Presidents, C. Bishop, Verona; L. Rouse, Marshall. Executive committee, N. S. Wright, H. A. Cary, James M. Tower, James Merriman, Jonathan Talcott, Henry Rhodes, Pliment Mattoon, George Bristol, George L. Brigham, W. O. Laird. Treasurer, Henry R. Hart, Whitestown; Secretary, J. Wyman Jones, Utica.

All of which is respectfully submited,

UTICA, *January*, 1855. J. WYMAN JONES,
Secretary.

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REPORT ON ORCHARD CULTURE.

[Read before the Oneida County Agricultural Society, Sept. 26, 1854.]

The committee appointed to award the Society's three premiums on orchard culture have carefully attended to this duty, and report the following result of their examinations.

The first premium of $15 they award to Jonathan Talcott, of Rome, whose orchard contains 385 thrifty trees, most of which have already fruited. The largest of them were planted in 1849, and will now measure sixteen inches in girth. Mr. Talcott's trees were bought at the nursery of John J. Thomas, of Macedon, with the exception of thirty, of the Ladies' sweeting variety, which were furnished by Charles Downing, of Newburgh. Of early apples Mr. Talcott has thirteen varieties, viz: Yellow harvest, Red astrachan, Summer rose, Sine-qua-non, Sweet bough, Early joe, Golden sweet, Summer queen, Vedder's pippin, Summer pearmain, Early strawberry, William's favorite, Northern sweet. The Red astrachan and Early strawberry rank very high in Mr. Talcott's estimation. Of fall apples he has seven varieties, viz; Late strawberry, Porter, Gravenstein, Hawley, Autumnal swaar, Fall orange, Jersey sweeting. His early winter kinds are seven, viz: Rambo, Ribston pippin, Fall pippin, Bellmont, Hubbardston nonsuch, Melon, Fameuse. His late winter and spring varieties are eighteen, viz: Baldwin, Red Canada, Esopus spitzenburgh, Rhode Island greening, Swaar, Jonathan, Peck's pleasant, Tallman sweeting, Northern spy, Roxbury russett, English russett, Westfield seek-no-further, Yellow bellflower, Domine, Vandevere, Wagener, Lady apple, Kingsley apple. In selecting his trees Mr. Talcott gave the preference to late-keeping winter varieties, especially the ten first named.

The land on which Mr. Talcott's orchard stands is mostly a sandy, or gravelly loam, with a clayey subsoil. Previous to planting, the ground was plowed in back furrows, and the holes dug along the ridges, thirty feet apart, three feet in width, and eighteen inches deep. In each hole was put a large wheelbarrow load of compost, made of stable manure, lime, ashes and muck, mixed under cover the year before. In planting the trees surface

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soil was placed about the roots. The orchard ground has been cultivated to hoed crops. Once a year the trees have been pruned, and washed with strong soap suds, a woollen cloth being used for this purpose. This washing has given the stems a clean healthy look, and has tended to keep away insects. At the approach of winter the soil has been heaped up about a foot around the trees; this has kept away the mice.

In Mr. Talcott's collection the Ribston pippin fruited the first year after planting. This tree is a prolific bearer, and promises to be equal to the Baldwin and Swaar. Among the varieties that fruited the second or third year were the Jonathan, Early harvest, R. I. greening, Fall orange, Hawley, Golden sweet, Ladies' sweeting, Peck's pleasant, Yellow bellflower.

The second premium of $10 is awarded to Morris Case, whose orchard stands near Washington mills, in the town of New-Hartford. This orchard has a fine exposure, standing on a hill side that slopes down toward the south-east. The soil is a gravelly loam. In 1848 it was well manured and planted with corn and potatoes. The trees were planted in the spring of 1849. They were furnished by Thorp & Smith of Syracuse, and were warranted to be true to their labels. They were set thirty feet apart each way. The holes were dug very broad and deep, and the subsoil was thrown aside. In filling the holes the surface soil was used, mixed with well rotted compost. Water was poured about the roots, to bring them into close contact with the earth. Chip manure was put about the trees after they were planted. The tops were cut back to give the trees uniform and symmetrical heads. The ground has been planted with corn or potatoes every season except the present; this year it was cropped with wheat. During the winter the snow has been trodden down about the trees, to keep the mice from gnawing off the bark. When planted the trees were three years from the grafting. Some of them fruited in 1852. The Baldwin, Greening and Roxbury russett were among the first to bear. The Northern spy and Spitzenburgh have not yet fruited.

The third premium of $5 is awarded to Alfred S. Wells, whose orchard of 210 trees, planted in 1845, stands near the Clinton

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cotton mills. The trees were obtained, partly from Syracuse and partly from J. C. Hastings of Clinton. Those obtained from Mr. Hastings were selected by the purchaser from a large stock, and are remarkable for their vigorous and shapely growth. Before Mr. Wells' trees were planted, the ground was thoroughly subsoiled. It has returned annual thanks for this treatment in most bountiful crops. The trees were set thirty feet apart, giving forty to the acre; the holes were dug three feet in diameter, two and a half feet deep; they were filled with soil from the surface, mixed with a compost of animal and vegetable manure. The trees have been trimmed once a year, in the month of March; in winter the snow has been trodden down about the root. The varieties first in bearing were the Greening, Baldwin, and Roxbury russet. The Spitzenburgh and Northern Spy have not yet fruited.

The committee visited another orchard of fifty trees, planted by George Parker, of Franklin, which deserves to be spoken of with commendation. It was brought to the notice of the committee too late to allow it to compete with the others. It is younger than the others, but promises to equal them as a profitable and exemplary orchard. The trees were raised from the seed, and grafted by Mr. Parker; they were set in 1852, and many of them are now loaded with fruit. Mr. Parker's list embraces, among other standard names, the Juneating, Spice, Jewett's fine red, Pound sweet, Summer queen, Peck's pleasant, Sops-of-wine, Sweet bough.

The committee are not satisfied that the best of these orchards is, in all points, as good as it might be; yet they think they see in the history and management of each of them, something that is worthy of special praise. What they particularly approve in the Talcott orchard, is the close personal watchfulness which the trees have had the benefit of. No moss has been allowed to gather on their stems; they have been defended from their enemies, and encouraged to form shapely heads. Mr. Talcott looks after his trees with careful eyes, and tends them with his own skilful hands. He has no map of his orchard, and his trees carry no labels; yet he can call each one by its right name, and tell the quality of its fruit. His ground is often enriched by that best of

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all manures—the owner's footsteps. Mr. Case's plan of keeping a map of his orchard, with the name of each tree inserted in its proper place, is a good feature. A similar map is kept by Mr. Wells. Mr. Talcott's tenacious memory answers the purpose of a map to himself, but not to his family or his employers. The Wells orchard was commenced in the only right way—by subsoiling the ground; trees planted in ground thus prepared are more likely to strike deep roots, and make healthy wood; they are less likely to suffer in a dry season. Mr. Parker has set a praiseworthy example by growing and grafting his own trees; the work has been undertaken as a pleasant method of improving odd hours, and without disturbance to his usual business.

The committee were sorry to notice that in these young and healthy orchards so large a proportion of the fruit was injured by the apple worm; on several trees they could see that the catterpillar and canker worm had commenced their ravages. There is little hope for the middle life, and none for the old age of an orchard, if its infancy cannot be saved from such depredations. Constant vigilance is the price of perfect fruit!

It is to be wondered over, that the landowners of Oneida are not more zealous in planting orchards Nature has given them a soil and a climate most propitious for the raising of superior apples; inviting markets are near at hand, or are easily reached; ample inducements are held out in the direction of profit, of pleasantness, and of sentiment; yet many are still slow to enter into the full possession of their peculiar advantages as owners of Oneida soil. Who plants an apple tree in the soil of Oneida, makes a permanent investment, that may be expected to increase from year to year, until its original value is hundred-folded. Who plants an apple tree, makes a prudent provision against life's rainy days, against loss of health, misfortune in business, old age. Who plants a tree, extracts something of bitterness from the original curse. It was a part of Adam's punishment, to be expelled from the society of cultivated trees; to surround oneself with them, is to take some steps towards regaining the Paradise that was lost to man by his first transgression. The planted fruit tree will be a faithful minister to its owner's profit, improvement,

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health, and happiness. It will stand sentinel over his dwelling through winters of adversity, when summer friends have fled. While its master is sleeping, the tree will be growing. While he is traveling, the tree will stay at home, and keep on growing. It will be industrious for him through all seasons, converting air, and earth, and water into shadow for his footsteps, perfume for his parlor, food for his table, fuel for his hearth, timber for his use. It will serve him contentedly through life, and minister to his wants when its life is ended. A tree has moral and social uses. It is an orthodox, wholesome preacher. It will discourse daily homilies on faith, hope, patience, and good will to men, with a gentle eloquence that steals into the heart, making it more roomy and open, and filling all its chambers with sunshine. A tree sets an example of self-denying benevolence. It embroiders its foliage, and ripens its fruit by tedious processes; then gives them all away, dropping its last leaf to keep warm the tender plant that has taken root in its shade. The poet Virgil, discovers a close relation between generous character and generous fruit trees; his native land he celebrates as a "mighty parent of fruit, mighty parent of heroes." Children should have a double share of native depravity, not to be made better by the kindly influences that distill about them, when they are brought up in the companionship of grand and chivalrous trees. Would a man rear a monument to his memory more to be coveted than one of costliest marble, let him plant trees; they will sing his praise in measures sweeter than a poet's, when no envious lips are there to detract.

Respectfully submitted,

EDWARD NORTH,
HENRY R. HART,
J. WYMAN JONES.

ONONDAGA.

We are making progress in the right direction. Last year there were but 475 members of our agricultural society; this year we have 623. Our receipts last year were $946; this year $1,195. Notwithstanding the very unfavorable season, our exhibition in almost every department surpassed any of its predecessors. The

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interest manifested by the public in our society and its fairs, has increased and is still increasing. Prejudice and doubt have subsided, and our annual gatherings have come to be regarded not only as "fixed facts," but as very pleasant and useful ones. Among the farmers distrust has given place to approbation, and indifference to enthusiasm. A disposition exists in the friends of agriculture not to rest satisfied with past achievements, but to go forward. It is in contemplation to make a liberal enlargement of our premium list, although it now offers between eleven and twelve hundred dollars. Past experience and observation teach us that the following plan of operations may be followed in this county, with a reasonable prospect of success:

1. Annual winter meetings for the election of officers and awarding premiums for fall crops.

2. The appointment of an executive committee of three efficient practical men from each town in the county, and ward in the city.

3. The selection of judges of known experience, capability, and promptness, who are to be notified of their appointment by a circular from the secretary.

4. The publication, in pamphlet form, of the revised premium list and regulations, and its distribution throughout the county.

5. Occasional meetings of the executive committee to propose and discuss measures for the benefit of the society, and the cause of agriculture.

6. A canvass of the county by the town committees, and a persevering effort to awaken an interest for the society, and to induce as many as possible to become members. Each committee man to be supplied with a package of printed certificates of membership.

7. The annual fair and cattle show. An admission fee of one shilling required of all visitors to the hall or grounds, except members of the society and their families. The exhibition of stock to continue but one day; that of implements, fruits, flow-

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ers, domestic articles, &c., for two days and a half. For the convenience of reporters and the gratification of visitors, each article exhibited to be labeled with the name and residence of the owner. Bands of music to enliven the evening exhibitions. Plowing match on the forenoon of the second day. The forenoon of the third day to be devoted to the sale of articles which have been exhibited. This arrangement will probably secure the attendance, as exhibitors or purchasers, of many who would otherwise remain away. In the afternoon of the third day the annual address to be delivered, and the reports and awards of the committees read.

8. The publication, in the public press and in pamphlet, of the transactions of the society for the year, with the list of members, the annual address, and other matters of interest.

This programme is furnished with the hope that our sister societies will point out its defects, suggest improvements, and profit by its excellencies, if it has any. We may thus be able, in time, to obtain a perfect model.

Officers for 1855.—President, Jason C. Woodruff, Syracuse; First Vice President, Edmund D. Cobb, De Witt; Second Vice-President, Luther Baker, LaFayette; Recording Secretary, Henry D. Didama, Salina; Corresponding Secretary, David Cossit, Onondaga; Treasurer, James S. Davis, Syracuse.

ADDRESS OF THE HON. GEORGE GEDDES BEFORE THE ONONDAGA COUNTY AGRICULTURAL SOCIETY, SEPTEMBER 22, 1854.

Mr. President, and members of the Onondaga County Agricultural Society—Two hundred years ago, on the 16th day of August, Father Simon Le Moine, on a mission of friendship to the Indians, arrived at what, in his journal, he describes as "a small lake in a large, half-dried basin." He says, "we tasted the water of a spring that the Indians durst not drink, saying that there is a demon in it, which renders it fœtid; having tasted it, I found it was a fountain of salt water; and in fact we made salt from it as natural as that of the sea; of which we carried a sample to Quebec."—*Doc. History.* When he reported this discovery

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to the Dutch of New-Amsterdam, they pronounced it "*a Jesuit lie.*"—*Clark's Onondaga.*

After this the Indians boiled salt; and sixty-six years ago, Comfort Tyler was by them shown the spring, and to him belongs the honor of commencing, that branch of business which has contributed so much to the wealth of our county, and has paid more than three millions of dollars, besides its expenses, into the treasury of the State.

Comfort Tyler, alone in the woods, upon the borders of the marsh, within a stone's throw of the place where now stands the pump house, in the first ward of Syracuse, boiling his *thirteen bushels of salt*, little thought he was laying the foundation of this flourishing city; but so it was—and from that day commences our history.

He showed the spring to Asa Danforth, who made the next salt; and the fame of Comfort Tyler's kettle, suspended from a chain around a pole, which was held up by two crotches stuck in the ground, went abroad; and the next year, 1789, "Nathaniel Loomis came to Salt Point, and made from 500 to 600 bushels, which he sold for one dollar a bushel."—*Clark's Onondaga.*

William Van Vleck, Jeremiah Gould, and Moses De Witt followed; and in 1793 an "arch" was erected, containing four kettles, which sufficed to supply the market for the surrounding country.

Early in the spring of 1794, a company of men from Pennsylvania, having for its president the late James Geddes, commenced the manufacture of salt at, what he called in his journal, "South Bay," though since known as the village of Geddes.

Those early settlers were annoyed by the British, who still held Oswego, in violation of the treaty by which our independence had been acknowledged, and the garrison assumed to collect duties from our boats that passed up and down the river, employing spies to give notice of any boats that might design to "run" the fort. The men of Salt Point caught the spies, and "publicly whipped two of them."—*Clark's Onondaga.*

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In the manuscript journal of the late James Geddes, I find under date 22d of April, 1794: "Mr. Church lost his boat at Oswego garrison;" and on the 4th of the next month the following entry: "A British boat taken and brought in a prize to Onondaga Salt Springs." So it appears our people managed not to get too much into debt to the British, but kept the account of hard blows tolerably even.

These things were done only sixty years ago, and Mathew Van Vleck, who now cultivates his beautiful farm on the shores of Onondaga lake, well remembers the bringing in of the British boat, and the distribution of the spoils.

In these sixty years what has been accomplished? We have cleared, and converted into farms, 317,280 acres of land. We had in 1849 raised the cash value of our farms to $17,055,324, and we have yet 113,291 acres of unimproved lands. Our population now cannot be less than 92,000.

In 1849 our farming implements were valued at $804,010, which was more than any other county had in the State. We had 13,987 working horses, being the third county in the State in this particular. We had 21,203 milch cows. Ours was the ninth county in the production of wool—producing 345,880 lbs., and we were the fifth in the value of orchard products, $66,635. The county of Dutchess alone raised more Indian corn—we produced 782,220 bushels. We produced 440,293 bushels of barley, which was 136,340 more than any other county in the State, and we produced 427,535 bushels of wheat. But not to weary with mere statistics, the farm productions of this county for 1849, put at the old fashioned prices that ruled during that year, amounted in value to $3,258,933. If one half of this sum be assumed as sufficient to pay expenses, then we will have left between nine and ten per cent upon the estimated cash value of the farms in this county. This shows that farming is profitable in Onondaga. These results have been produced in the lifetime of some among us, and are fit subjects of congratulation. But it may be worth our while to inquire whether we are to ascribe these results more to our skill and greater industry, or to our natural position and advantages.

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Little did Father Le Moine, when he stood beside our Lake, surrounded by its half dried muddy shores, suppose, that under him was a mine of priceless value—that the far off hills that rose in the south were rich in minerals, more valuable than gold, and that the great plain that stretched off to the north, was capable of producing the most esteemed grains in their greatest perfection. But so it was—and so it is now, and to these geological advantages, even more than to our industry and skill, is to be ascribed the fact, that this is the Empire county of the Empire State.

The whole surface of this county gives the most unmistakable evidences, that once it was the bottom of the sea. We have all noticed, that the rocks are formed in nearly horizontal layers, one on another, like the leaves of a book, and that most of these layers contain shells and other remains of once living beings. These rocks were deposited, particle by particle, in the sea, and these shells falling upon these particles, were beded and covered up in process of time, and when, by pressure or chemical action, these immense bodies of mud became hardened into solid rocks, these shells, or their forms appear in the substance of the rock itself.

This former bed of the ocean, has been, by some internal power lifted up above the level of the water, and, at the same time, the layers of rock have been thrown a little out of level, so that here in Syracuse, they slant to the South West, about twenty-six feet to the mile.

As the earth gradually rose above the water, the vallies that are so marked a feature of our county, particularly in the south part of it, were made by the action of currents. These great currents, perhaps like the Gulf stream, sweeping along in a certain direction, wore off the edges of these rocks, as they gradually approached the surface of the water, and carried their particles further on, and deposited them in eddies or upon great plains, thus making other deposites of beds of sand, clay or gravel, or forming other systems of rocks, in far distant localities. These great operations of nature, are now going on so slowly, it is true, as to attract the attention of only scientific men.

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Under the action of these currents, bearing, as they did at times, immense masses of ice, our rocks were broken down more or less everywhere, and their surfaces scratched and furrowed out. In the localities where the rocks were the softest, as in the case of the Onondaga Valley, they gave way entirely, and the waters swept across their beds, between the nearly vertical walls on each side of the valley. But for nearly the whole width of the county, from east to west, the lime rock proved too strong for the water, and now presents its perpendicular front nearly unbroken, as it did thousands of years ago, to the mighty surges that recoiled and fell at its base.

I now proceed to give as particular a description of our rocks, and the soils formed from them, as the limits of an address like this will allow.

The strata dipping to the southerly, and the south part of the county being much higher than the northern, enables us to show these strata to great advantage, by a drawing of a section of the county, crossing it from the north east to the south west.

Beginning our description of these rocks, on the north side of the county:

First is the "*Clinton group*," appearing along the shore of Oneida Lake, and in some parts of Lysander. This is a rock of variable texture, sometimes soft and shaly, liable to disintegration, at other times hard and sandy, resisting strongly the action of the weather, and has but little influence on the agricultural character of the county. (*Emmons.*)

The "*Lockport* or *Niagara* Lime stone" is found in Cicero and Lysander, being used both for burning into lime and for building, and is to the farmers of that part of the county of very great value. It has been used extensively in Baldwinsville for building, but it is quite thin in the quarries, only 4 or 5 feet thick, and appears in but few places near the surface of the earth. (*Vanuxem.*)

The "*Red Shale*" comes next in the ascending order, ranging along the north side of the canal, east and west, and in some instances, as in the town of Van Buren, of many miles in width, and

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appearing on the north side of the Seneca River, at Baldwinsville. This rock is said by the State geologists to be not less than 500 feet thick, and underlies the whole northern borders of the county, and has contributed largely to the formation of the soil. Sand, lime, iron, organic matter and magnesia are its principal constituents. In some places the clay formed from this rock, is used for making brick. (*Emmons.*)

In this red shale is the bottom of Onondaga lake.

Next above this is the "*green shale.*" This rock is generally seen on the south side of the canal, though sometimes to the north of it. The red and green shales run into each other in such a manner that the line between them is not always clearly marked. The whole mass is soft, and readily decomposes in the air; it is marked by hopper formed bodies. This is the plaster bearing rock. In the lower part of it, and near the red shales, the plaster is found in small quantities in various places in the county, while in the upper part of the green shales it is found in large masses. The railroad cutting in the town of Camillus is through the lower plaster beds along Nine Mile creek, while perhaps 100 feet above the railroad, on the Windfall brook, the upper beds are worked, and yield the most valuable plaster for agricultural purposes, having sulphur so much in excess, that there are many samples of native sulphur found in it. The green shale has less sand than the red shale, more lime, more iron and less magnesia, with about the same amount of organic matter, while the green is much more soluble in water.

The green shale is composed as follows:

Water of absorption,	0.50
Organic matter,	6.00
Silex, or silicates,	34.56
Carbonate of lime,	50.06
Carbonate of magnesia,	2.16
Peroxide of iron and alumina,	6.38
	99.66

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In the green shales is found the "*vermicular lime rock*" of Prof. Eaton. Its color is dark from the presence of organic matter, and it is full of small ragged holes. It undergoes the same atmospheric changes as the other parts of the formation, but not so rapidly. It contains a larger amount of magnesia than the other parts of the gypseous rock. (*Emmons*)

Large quantities of this rock have been thrown out of the excavations for the foundations of the asylum now in the course of construction, on the hill west of Seymour street.

These two shales constitute the true wheat growing part of this State, and from their destruction in large masses, by the great currents I have spoken of, and from their having been by those currents carried to the south; immense districts have been fertilised, and rendered capable of bearing wheat, that without this assistance could not produce it at all.

From the green shales our salt springs are derived. The hopper formed bodies owe their shape to crystals of salt; these crystals have, by the percolation of water, been dissolved, and carried down to the more tenacious red shales, and along the top of those shales till it appears at the surface in places east and west of us many miles.

It so happened that the great current that swept away the Onondaga lime stones in this valley (Syracuse) also excavated to a great depth in the red shales, thus forming a great basin, (its northern rim being north of Onondaga lake,) whose bottom being tight, does not allow the water of what might be called the artesian springs to rise up through it. After this basin was thus dug out, it was partially filled with gravel and other material through which water can percolate. I have seen pieces of well preserved logs that were cut up by the drills used for boring for salt water, at a depth of from 113 to 131 feet, so well preserved that there is no doubt that one of the pieces I show here is common elm, the other hemlock.

Over this gravel, timber and other alluvial deposites, there is now a water-tight roof of marl. This marl is due to the springs and

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streams that come down from the lime rocks to the south of us. Over this clayey marl is Onondaga lake, having a depth of 65 feet. Thus the strength and purity of our salt water, as well as its abundance, is owing to the great basin I have described, with its water-tight bottom and roof, and to the fact that the strata of our rocks are sufficiently elevated at the north side of the basin to prevent the water from running off in that direction, except the small quantity that finds its way up through the roof to the surface.

These geological considerations lead me to think that when we want more salt water we are to look for it up the vallies of the Onondaga and Nine Mile creeks. The bottom of the salt well at Liverpool is far below the bottom of Onondaga lake, and I am convinced its salt water comes under the lake from the Nine Mile creek valley, for there is more than 60 feet of earth between the bottom of the lake and the bottom of this well, and very certainly no salt water can be found north of the lake that does not come from the hills south of it.

The value of the beds of plaster that are found in the green shales, to our farming interests, cannot very well be over-estimated, and I believe that our best farmers are using more plaster than they did formerly. This year the plaster was all drawn from the mills early in the season; thus showing that the farmers were coming to the proper estimate of its value faster than the mill owners anticipated.

While chemists have been disputing as to the manner of the operation of plaster, we have settled by observation, that it is of marked value upon clover, corn, oats, barley, potatoes, and pasture, and its effects are seen on grass lands, for years after its application, and probably until the ground is again plowed. The improvement that I would suggest in the common manner of using plaster, is that we should apply less at a time, and make the applications oftener. The sowing of plaster by hand, is a very unpleasant piece of hard work, and it is by far the best economy to use one of Seymour's machines. With these machines the plaster is evenly distributed over the whole ground, and for this

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reason, a smaller quantity of plaster is required to touch every part of the surface. Plaster is very valuable in our stables and on our manure heaps. It is much better than quick lime to purify sink drains, and to use in localities that it is desirable to free from all offensive odors.

The next rock in the ascending order is the "*water lime.*" The lower strata of this group furnish us farmers who live alongside of the ledge, with materials for farm fences. The layers that are burnt for water lime, are from two to four feet thick, and are of a drab color. This valuable mineral is extensively burned and ground in our county. Its qualities for hydraulic cement depend upon the proper selection of the stone in the quarry, upon its being fully burned, and finely ground.—*Vanuxem.*

If it is of the best quality, it sets rapidly when mixed in proportions of one part lime to two of sand, being thoroughly worked together before the water is added. This cement not only retains its form under water, but gradually hardens until it becomes nearly as strong as the stone from which it was originally made. There has thus far been found no material that was at once so cheap and so durable, for making pipes for conveying water for farm and domestic purposes. An inch pipe, strong enough to sustain the pressure of twenty feet of water, can probably be made for fifty cents a rod, and then it is not only as lasting as stone, but will preserve the water as pure as though it was brought from the spring in a porcelain pitcher.

Magnesia constitutes a large percentage of this rock, varying in the analyses that I have seen from 13 to 30 per cent. of the whole mass, while there is a marked deficiency of carbonate of lime, when compared with the pure lime rocks.—*Vanuxem.*

Above the water lime, we find in some places in the county, a mere trace of the "*Oriskany sandstone.*" This is the case at Split Rock, while in Skaneateles it is thirty feet thick. The "*Onondaga limestone*" is a well known rock, extending in a belt from the Hudson river to Lake Erie. This is a pure calcareous rock, which resists the action of the weather better than any other we have, and from our quarries most of the locks and aque-

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ducts of the canal, as far west as Rochester, have been constructed. Lime made from this rock is most valuable for common mortar, tripling its bulk in the process of slaking. The superiority of this rock for the purposes for which quick lime is used, is owing to the absence of magnesia. But for purposes of manure, it is, for this reason, of less value than the magnesian rocks that are found under it.—*Emmons.*

Above the Onondaga lime, is found a rock known as the "*corniferous limestone,*" This rock is of little value, and may easily be identified by its position, and the nodules of flint or horn stone that abound in it, arranged in parallel layers.—*Vanuxem.*

The "*Seneca limestone,*" in heavy, thick layers of black masses, is found at Marcellus and some other localities in the county, but does not constitute an important part of our system.

The "*Marcellus shales*" are the next in the ascending order, and constitute, with the "Hamilton group," into which they run, without any very marked line of division, the basis of the soils of a large part of the county; nearly one half. The "Hamilton group" has more sand that is angular, showing less action of the water than the Marcellus shales, and magnesia is wanting almost entirely in the Hamilton rock.—*Vanuxem.*

South, and still higher up, are found a few localities of "Tully limestone." "The 'Genesee slate,' and the base of the 'Portage or Chemung group,' are the highest geological masses of the county, occupying the extreme south-east of Fabius, the larger portion of Spafford, and a portion of Tully.—*Vanuxem.*

The county of Onondaga is thus crossed from east to west, by the Clinton group, the Niagara limestones, the Onondaga salt group (which includes the red and green shales and the plaster), the water lime, a trace of the Oriskany sandstones, the Onondaga lime, the Corniferous lime, the Seneca limestone, the Marcellus shales, the Hamilton group, the Tully limestone, the Genesee slate, and the Portage or Chemung group.

These systems of rocks constitute the basis of our soils; their particles, separated by the action of the elements, have been de-

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composed, and in process of time rendered fruitful. Besides these rocks, we have beds of gravel and rounded stones, that have been brought to us from the far north, by water; and we often see large boulders of granitic rocks that were brought here on islands of ice that once drifted about in the sea, that in a period far back in the world's history, submerged all this part of the continent.

The three towns in the northern part of the county—Cicero, Clay, and Lysander—are nearly in their whole extent partially covered with this northern drift, and their soils are thereby very much modified.

Another variety is given to us by the streams that carry the particles that fall into them from the hill sides to the valleys, and there make large tracts of alluvial soils. These abound in the central part of the county, along the line of the canal, and around Onondaga lake.

The springs that flow from the lime rocks deposit tufa, in many instances in sufficient quantities to make farm fences and to burn into lime. So highly are many of these springs charged with carbonate of lime, that as soon as the water meets the air, it parts with a part of the lime, and encrusts leaves and twigs and whatever may be encountered. These substances, perhaps, then decay, leaving perfect impressions of every line and part of their forms upon the solid rock.

This tendency of our spring water in the tea kettle is sometimes very vexatious to the good house wife, as well as to the locomotive engine driver in his boilers.

There are large deposits of marl in this county; one just east of Syracuse is finely shown by the railroad cutting through it. The great Cicero swamp is rich in this valuable fertilizer. Lake Sodom, in Manlius, is constantly depositing this mineral; the trees that fall into the lake are whitened with it. Onondaga lake is surrounded by a marl bed "The lakes of Tully are also marl lakes." Mr. Vanuxem, the State Geologist, predicts that other deposits of marl will be found to the south of us, "when under drainage will generally be practiced, for accumulations of

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the kind must be found in many low and marshy situations, from the great abundance of northern alluvial, containing pebbles, &c., of limestone, which there exists."

The soil least affected by these modifying circumstances of the drift and the alluvial deposits, is that in the middle of the county, along the Onondaga salt group. The red shales and the green shales are generally uncovered along the line of the canal.

As we go south, the ragged front of the limestone gives us a hard soil to work, being mixed with stones, but of a most fruitful character. On still further south, "a grazing district takes the place of a wheat-growing one. This change, however, may not be due entirely to changes in the composition of the formations. The country has become decidedly hilly. We now find steep slopes, inclined surfaces, deep ravines, rounded hills; in fine, all the characteristics of good fields and walks for sheep and cows, for sweet grass and pure streams of water."—*Emmons.*

And here it is that our farmers produce wool, butter, and cheese, to the greatest profit. Their pastures and meadows do not "run out," as do ours, on the rocks of the red and green shales; the surface is less liable to crack in dry weather, and the turf is of a more even and uniform texture.

Such is the great variety of the soil of this county. Sometimes it is a mere covering a few inches thick over a hard rock; sometimes it is many feet deep, and made of gravel and boulders from the barren regions of the northeast; or perhaps a peat swamp charged with the sedimentary matter brought by our streams from our own lime hills, and mingled with the decayed vegetation of many centuries—thus not only making a most fertile soil, but providing a bed of manure for the more sterile soils around.

To such a great variety of soil no one general plan of cultivation, or system of agriculture can, with propriety or advantage, be applied. The farmers of Van Buren and Camillus cannot properly either adopt the same processes or produce the same crops as the farmers of Tully and Fabius.

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Another great source of variety in our farming and in our productions is the difference in elevation of the north and south parts of the county.

The south part of the county, being much higher than the north part, is colder. Thus Pompey for sixteen years, had an average temperature of 42 91-100 degrees, while at Onondaga Hollow the observed temperature for fourteen years, was 47 54-100 degrees, giving a difference of the temperature of the two places of 4 63-100 degrees, while the average of the whole State is 46 49-100 degrees.

Although Pompey is said to be the coldest place in the State at which observations have been made, if the average of the whole year is taken, according to Dr. Emmons, yet the same authority says the thermometer does not sink so low in winter, nor do the autumnal frosts occur so early, as in the State generally. The length of the summer season in the State generally, reckoning from the first blooming of the apple trees to the first killing frost, is 174 days; in Onondaga, it is from 174 to 180, thus giving us three more summer days than the average of the State, while Long Island has 12½ more, and St. Lawrence 22 days less than the average of the State.

It is certain, that if the town of Pompey had just the same soil as the town of Camillus, such is the difference in climate, that crops that could profitably be grown in one, would prove but a failure in the other. It is equally certain, that the same modes of culture will not answer on the clay soils of Skaneateles, and the light soils of Cicero.

This summer has been remarkable for the absence of rain, and all parts of the county have greatly suffered from the unprecedented drouth. We have been told that we had the ability to nearly do away with the evils of dry weather, by deep plowing. "*Three feet deep*," we were directed to go down, and thus have a great amount of earth in a condition to hold the water of the rainy season for use in the dry times.

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Where the soil consists of deposits from the streams, very deep plowing will perhaps prove advantageous; but in various sections, experience has established the fact with certainty, that only a few inches of the sub-soil, can with advantage be mixed with the surface soil at one plowing. A gradual deepening of the soil in the more clayey districts, is good farming; but a sandy soil, experience, that best of teachers, says, demands a different course of treatment.

The best plow for clay land, may be the poorest for sandy and loamy soils, for clay not only requires to be turned over, but pulverized and left light, while the loam should be packed closely together. On clayey farms the roller is of little use—in many instances it does great injury—while on sand it is one of the most important farm implements. Light soils require to be packed together—lacking, as they do, tenacity. On the other hand, heavy soils have a tendency to pack so closely as to injure or entirely prevent vegetation.

"The capacity of a soil to support, for a series of years, the cultivation of crops, depends mainly upon the following conditions:

"1st. Upon the quantity of water it can imbibe or retain, during the seasons which would be considered dry.

"2d. On the amount of nutritious matter which may be introduced without waste.

"A supply of water must ever be regarded as one of the most essential things in the cultivation of all crops. This water must be retained long enough to act upon the nutriment in the soil; it must not escape immediately from the superior part of the soil, or that part through which it usually ramifies. The quantity of water which may be condensed in the soil, depends too upon its retentiveness of water. If it is too porous, it is speedily washed out and lost; if too close, it is not received into it, but lost by exhalation from the surface. In cultivation then, we seek to modify both extremes—the object in all cases, being to secure that texture, which will give it certain relations to water, which experience and reason determine to be the best."—*Emmons.*

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We cannot adopt the same rules for plowing all over this county. The great currents of water that once swept across this soil, from the northeast to the southwest, have, in many instances, left the hill sides that look to the direction from which those currents came, nearly bare of soil. This is especially true on the Hamilton group; in many instances, the rough edges of the out-cropping rock defy the entrance of the plow, and the land is given over to pasturage. Along the top of the "Onondaga Lime Stones," we see a soil very fruitful and valuable, though perhaps only four or five inches thick, with a floor of rock underneath.

Much has been written in favor of thorough under-draining, and some theorists have asserted, that there is no soil that under-draining would not benefit. It will not do for us to adopt, without careful consideration, these sweeping declarations. The good effects of under-draining in England, where it rains most constantly, and where the air is so loaded with vapor as to hardly give a fair day once a month, cannot safely be quoted to prove that it would always be good here, where we have an entirely different atmosphere, as regards humidity.

The central parts of our county are most perfectly protected from excess of water by the shelly character of the rocks that underlie the soil. The southern half of the county, made up as it is of "hill and dale," and devoted principally to pasturage and the production of hay, generally requires for such purposes but little draining, while the great plain that makes up the northern part of the county, generally would be much benefited by draining. The beds of clay hold up the water, and the level surface and absence of vallies render draining difficult, and the spirit level will be found often necessary in laying out the ditches.

Thus diversified in soil, in climate and geological formation, this county presents within itself the greatest variety and most interesting subjects for agricultural study and investigation. To the proper solution of the various questions that perplex us in cultivating our farms, we require science, thought, labor, and above all, good common sense with great experience.

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I have spoken of the present productiveness of our county in my opening remarks. Can we sustain for the future the present fertility of our soils?

Once New England raised wheat and other grains profitably. Massachusetts, New Hampshire, Connecticut and Rhode Island, all of them, in 1849, produced but little more than half as much wheat as this county; and in that year we raised more barley than all New England. New England could produce wheat when the land was new and full of vegetable matter; but a few crops consumed the wheat-growing properties. This is not our case. The rocks that we live on contain an inexhaustible supply of food for the wheat plant; and while it is raised anywhere on the continent, our county will continue to produce its proportion; and these remarks are true of all the grains.

We have in this county unequalled sources of manure. Our plaster beds, our lime rocks, our beds of marl and our swamp muck, are accessible to all; besides we have the refuse of the salt works, which, according to Dr. L. C. Beck, consists of—

Muriate of lime,	11
Muriate of magnesia,	4
Carbonate of lime,	60
Sulphate of lime,	688
Muriate of soda,	237
	1,000

I have made numerous experiments with salt for a manure, but never could see that it was of any advantage, but the impurities which are separated from the salt in the manufacture, beyond doubt are very valuable.

To these sources of manure we add the barn yard, and it is certainly within our power to keep up the fertility of our soils with anything like a judicious course of husbandry; and I will add, we do not only keep up, but improve our soils.

I know that it is the custom of agricultural writers, especially such as Prof. Johnston, of Durham, England, to say that we

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are fast ruining our soil by excessive cultivation; but my own experience and observation prove that this is not so.

In 1849 I took Prof. Johnston over some of my own fields, that had been under cultivation then for more than fifty years. Having had but two owners, my father and myself, we know that no manure but plaster and clover has been put on this land, and its productiveness is yet unimpaired; on the contrary, it is more productive than it was twenty-five years ago, as proved by my own observation and by chemical analysis. The learned Professor wrote a book, the great point of which is, that we are running out by degrees. The things he saw here in Onondaga conflicted with his ideas, and he has the following observation in his book on my farming: "On land like this extraordinary green shale, such severe—what we should call scourging—treatment may be continued a great many years with apparent impunity, although it tells very soon on land of inferior quality; but even on this land it tells at last." So he disposes of this great experiment by a prophecy of evil in the future.*

* In 1849, the lamented Professor Norton made an elaborate analysis of this field, that had been under cultivation fifty years, manured only with plaster and clover, and also of the "green shale" rock that is mingled with the soil, as often as the plow goes deeper than common. The following is the analysis:

	Soil.	Rock.
Soluble in water.		
Organic matter,	5.18 per cent.	3.74 per cent.
Lime,	0.04	....
Magnesia,	0.17	1.58
Potash and soda,	0.68	2.32
Chlorine,	0.05	0.46
Sulphuric acid,	0.17	....
Soluble in muriatic acid.		
Lime,	6.26	6.75
Magnesia,	9.15	9.43
Alumina,	6.78	2.79
Peroxide of iron, with phosphoric acid,	4 60	4.03
Phosphoric acid,	0.44	0.84
Sulphuric acid,	0.07	....
Soluble silica,	trace.	....
Carbonic acid,	....	18·72
Insoluble in acid.		
Lime,	0.05	1.18
Magnesia,	0.14	0.75
Alumina and iron,	29.89	19.25
Silica,	50.78	33.21
	99.40	95.50
Both soils calculated free from water.		
Soluble in water,	0.92	1.18
do acid,	41.01	12.85
Insoluble residue,	54.04	81.30

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But, Mr. President, we have lost our wheat crop this year almost totally, not producing seed and bread for even the farmers.

The last winter was noted for its long-continued and severe cold, and the absence of snow. The earth froze uncommonly deep, the winds blew the surface dry, and, in short, the wheat was nearly all killed by this most extraordinary winter. What little wheat lived through, barely lived, and consequently was very late; and the spring did not favor its going forward rapidly, so that when the poor remains of the crop came to blossom, it was just in time for that most destructive little winged insect known as the midge or "wheat fly." This midge laid its eggs in the forming berry, and it was ruined. It is common to call this midge the "weevil," but it is not the weevil, but an entirely different insect. The weevil is an insect that destroys wheat after it is harvested, either in the mow or in the bin, and I am not aware that they ever do injury in a climate as cold as ours. I never saw one.

The midge is our great enemy, and it appears to have visited the whole wheat-growing part of the Northern States this year, and may hereafter be expected in all seasons that are late for wheat. The best known means of protection against its ravages is, to sow the varieties of wheat that ripen the earliest in the season, so that the grain may be somewhat matured before this fly appears, which is generally in the fore part of the month of June.

The "Hessian Fly" is another enemy of ours, and, in trying to get an early crop of wheat by early sowing, we constantly incur danger from the "Hessian Fly," in the fall of the year. If frosts occur soon after wheat is sown in the fall, in time to kill the "Hessian Fly," we rarely suffer much from it.

The most judicious course is to put wheat on ground, that is in first rate condition, in every respect, to produce a crop, and then we may reasonably hope for a fair return for our labor. But wheat is not our most profitable crop, even when we have good yields. It is by far the most valuable grain per bushel, and consequently bears transportation much further to a market than

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corn, oats and barley. For this reason, the farmers in the great West will continue to make it their principal crop for exportation, while their lands are new, and will produce it to advantage. We, living nearer the great markets, should turn our attention to other branches of farming for the present,—being well assured, that forever wheat will be produced in its greatest perfection on the narrow belt of soil, produced by the rocks of the Onondaga salt group, which extends, from a little east of us, west through the whole State, and crossing Canada, reaches the shores of Lake Huron. We now raise wheat profitably, because it comes well in with the other operations of the farm to raise a limited quantity, especially as it is the very best crop with which to sow our grass seeds.

The failure of the wheat crop is not confined to us, but is general throughout the country. The high prices of last year, caused by the rumors of war in Europe, led us to export largely, and this year's harvest found us without any wheat in our granaries; so the deficiency of the crop must be severely felt before another harvest. In 1849 the whole wheat crop in the United States was 100,485,944 bushels. This gave about 4½ bushels to each inhabitant. The wheat produced that year in this State was 13,121,498, nearly 4½ bushels for each person. It is not probable that we shall have this year more than 6,000,000 of bushels in this State, and I shall be much gratified if in the United States the crop comes up to 75,000,000; I think it will not. The home demand must be greater than the home supply, and we must import before another harvest. Canada is our nearest place of resort, and probably, from the unsettled state of Europe and Asia, is the only country from which we may look for a supply. The universal drouth of this summer has probably cut the corn crop of the whole country down one third. All other crops, as well as grass —all the means of fattening animals—are in like manner lessened, and high prices and great scarcity are before us, with the consequent suffering of the poorer classes.

The general failure of the productions of agriculture will bring loss and calamity everywhere. We feel the loss first, and are driven to retrench in our expenditures; the merchant finds his

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goods unsold on his shelves; the mechanic is no longer in so full employment, and too, his food is increased in price; in this way the evil spreads through all the ramifications of labor and business. Lack of prosperity to the farming interests is like a deficiency of power in the driving wheel of some vast and complicated piece of machinery; all the spindles, all the saws, all the hammers, and all the chisels move languidly, or stop. The precise position and importance of the agricultural interests in the body politic, is this year likely to be seen, though the lesson comes in sorrow to us all. In 1849, our farms produced us nearly ten per cent. on their value, and probably for a period of ten years past the farm-interests of this country have been as prosperous as any other great interest in the whole round of labor and production. Now, in 1854, we suffer; but it is from causes beyond our control, and that perhaps never in the history of our country were so fatally combined in any one year. We must retrench our expenditures, and submit with becoming resignation to those dealings of Providence to us, and sow our crops with comfortable hopes for the future.

Mr. President, when you informed me that the executive committee of this society had assigned to me the duty of delivering the annual address, there arose in my mind a desire, too strong to be resisted, to make Onondaga county the subject of my remarks. This feeling I have obeyed, though it may be, at the expense of being dull and uninteresting; but I could not well do otherwise. "I am native here," and not a little proud of the county in which I have always lived. In my time, the farming lands of this county have increased in value from six to (in many instances,) a hunded dollars an acre. I have witnessed the commencement and growth of prosperous villages all over the county; and sir, I can remember back to the time when a dense forest covered ground that is now paved streets, running between magnificent buildings. I knew this place before it had a name. I now see it in prosperity, and constantly increasing in population and in influence. I rejoice in its prosperity; and sir, I rejoice that it is a free city, in which "even error is not feared while truth is left free to combat it." This valley is now, as it was when Father Le Moine first

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visited it, the grand council-ground of a free people. If independence of character is one of the traits of the people of this city, I believe it is no less so of the farmers of the county. When I saw in the census report that the farmers of this county had invested more money in tools and implements than the farmers of any other county in the State, I could not but think that this fact was a strong proof of their superior skill and excellence. I could not resist the inclination to talk of the advantages we possess, as one of the cultivators of a generous soil, that never failed to give a full recompense for the labor bestowed upon it. I felt that I was under obligations to present these advantages before you, according to my ability. If I have succeeded in making the members of this society better lovers of their homes, then has one of the objects I had in view been accomplished.

ONTARIO.

Sir,—It gives me pleasure to report the continued success and prosperity of the Ontario County Agricultural Society. Its annual fair and exhibition was held at Canandaigua, on the 27th and 28th days of September; the weather was delightful. The number of people in attendance was much larger than on any previous occasion; the competition for premiums unusually spirited, and the animals and articles exhibited, showed as decided improvement in quality as increase in numbers. There were one thousand animals and articles entered for exhibition, viz: 180 horses and colts; 125 head of cattle; 212 sheep; 50 hogs; 169 fancy articles; 95 articles of family manufacture; 169 specimens of fruit and vegetables.

The display of horses was said, by good judges, to have surpassed any that they had ever seen at a county exhibition, and not to have been inferior to the average exhibitions by the State Society. Of the character of the cattle, some estimate may be formed, from the fact that nearly one hundred dollars was paid in premiums for full bloods, the highest premium being seven

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dollars. In the other departments, the improvement was quite as marked.

The pecuniary success of the society has been still more gratifying. At the last winter meeting, the society decided to purchase a lot, and inclose and prepare it properly for its exhibitions. The committee appointed to carry into effect this resolution, selected a beautiful field of six acres, which they purchased for thirteen hundred and fifty dollars, and upon which they expended eleven hundred and fifty more, in inclosing, draining, improving, beautifying, constructing a fountain, &c. Notwithstanding these heavy expenditures, the receipts have been sufficient to meet them, and also to pay six hundred dollars in premiums, without incurring debt.

Since our fair, at a meeting of the executive board, it was decided to enlarge our fair grounds, and we have now ten instead of six acres inclosed, and a committee appointed to procure plans and estimates for a building large enough for the exhibition of fruits, flowers, fancy articles, farm implements, &c., with a room in the second story, for the meetings of the society, to hear addresses, and transact other business.

The officers of the society are elected at its winter meeting, which will be held on the first Tuesday in February, the proceedings of which will be duly reported.

JOHN S. BATES, *Secretary*.

CANANDAIGUA, *Dec.* 18*th*, 1854.

Sir,—I send herewith the return of our society for the current year. I regret that I have no means of obtaining the information which it is the object of your circular to elicit, except the census returns. "The statement of our agricultural condition," which you intend to make, will be of great value, if the facts upon which it is based, are facts, and the estimates are correct. The guesses and opinions of a half a dozen farmers in each county, might not even approximate the truth, I therefore respectfully suggest for your consideration, the following plan for obtaining the information desired, in such a way that it may be relied upon: let

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blanks be furnished the assessors of every town in the State, so arranged that they could rapidly and correctly take down the answer of every farmer in their respective towns, to the questions contained in your circular. It is already their duty to visit every farm and assess its value, and to fill out these blanks would not add very much to their duties. I believe most of the assessors would cheerfully perform this additional labor; of course, if the Legislature would pass a law authorising the proper officer to furnish the blanks, making it the duty of the assessors to fill them up, and paying them for it, it would be more cheerfully, as well as more thoroughly done, and the expense to the State would be trifling.

In answer to your seventh and eighth questions, I am happy to reply, that there is an increase of scientific attention to farm cultivation. Valuable agricultural journals are widely circulated and thoroughly read by our farmers, and I believe it safe to estimate, that the average yield of staple crops has been increased twenty per cent by this cause alone.

Drainage has received much attention. Many of our best farmers have already commenced a thorough system of drainage, and there are few who doubt its advantages, though of course, many will be slow to avail themselves of them.

Respectfully yours,

JOHN S. BATES.

At the annual winter meeting of the Ontario County Agricultural Society, which was held in the month of February, 1854, it was deemed advisable that some efforts should be made, on the part of those who had the success of the society at heart, to render the society a more efficient means of awakening among the farmers and those interested in agricultural pursuits, a greater interest in the practical and scientific improvements connected with agriculture in all its branches, and to infuse more life and energy into the operations of the society. The society had been organized very many years, and, in a great measure, the farmers took very little interest in its success, for the reason that there seemed to be no vitality in its organization, and the opinion, that

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it was of no practical use, had gained a lodgment in the minds of the people; it was therefore necessary to devise some means by which it could be made to be a practical co-operator with the farmers in the advancing of agricultural pursuits. After a series of meetings, at which the interests and permanent welfare of the society were carefully discussed and examined, it was by an almost unanimous vote resolved, that the society should be permanently located in the village of Canandaigua; that sufficient land should be purchased by the society to afford accommodations for all the exhibitions; that the land should be enclosed with a high fence; that permanent pens and stalls should be erected; and, that the society might be able to pay all the expenses consequent upon the purchase and improvement of the land, it was resolved that certificates of life membership should be issued by the society, upon the payment of ten dollars, and that a life membership should entitle the holder, and his or her family, to the same privileges for life that an annual membership did for the year.

In order to carry into practical operation the above resolutions, it became necessary for the society to be re-organized under the statute passed June 8, 1853, being "an act to facilitate the formation of agricultural and horticultural societies," by which the society was empowered to purchase and hold real estate; therefore, the members of the old society who had previously formed themselves into, and styled themselves, "The Ontario County Agricultural Society," under and by virtue of the provisions of the above-mentioned act, and elected as officers of the society thus organized for the ensuing year, all the persons who were the officers of the old society; a committee was then appointed, empowered to purchase sufficient land, and to make all the arrangements for the exhibition. That committee, after careful examination, selected the grounds now owned by the society, situated on Gibson and Gorham-streets, embracing nearly six acres, and had suitable pens and stalls erected, and the whole enclosed with a substantial fence seven feet high.

The success attending the first exhibition of the society, after its re-organization, in the fall of 1854, was a full vindication of the wisdom of the course pursued, and the advantages to be de-

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rived from the purchase of the land, and the issuing of certificates of life membership.

When the question of life membership was first presented to the consideration of the society, objections were urged by some, that while the amount secured for the life membership would, for the one year, increase the receipts of the society, the receipts for the future years would be cut off very materially, for that most of the exhibitors would be life members, and of course not liable to pay any fee for articles exhibited. There was force in the objections, yet the results of the last year have removed all fears of such a nature. The gross receipts for the year, under the new organization, were $3,460.11, while the whole amount received for life membership was but $2,130, leaving $1,330.11 received from annual members, shilling tickets of admission, and other sources.

In former years the receipts from every source rarely exceeded $500, and under the new organization the amount received for shilling tickets alone was $597.72, exceeding the total receipts of former years, from all sources.

The receipts were as follows:

Life memberships,.....	$2,130 00
Annual memberships,.....	439 00
Shilling tickets,.....	597 72
All other sources,.....	303 39
Total amount received for the fiscal year of 1854 and 1855, ...	$3,460 11

The interest shown in the success of the society by the large attendance upon both days of the exhibition last fall; the increased number of things exhibited, and the very general desire expressed that the society should enlarge their fair grounds, has induced the society to purchase about four more acres, immediately west, and adjoining the present grounds, which have been enclosed in the same manner as the other, forming now the most beautiful and spacious fair grounds of any agricultural society in

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the State of New-York. The grounds are peculiarly adapted for the accommodation of persons attending the exhibition, extending through from street to street, and are bountifully supplied with water from living springs, making the care of tending and watering the stock very slight.

This purchase of more land, and the improvement of the same, have, of course, compelled the officers of the society to incur a debt, the liquidation of which they hope to accomplish by additional life memberships; and they appeal to the farmers of Ontario county, and to all who have any county pride in them, to come forward and give their assistance in the good work.

Ten dollars, the amount of life membership, is but a small sum to each of the thousand substantial farmers of the county—and there are hundreds of them who can and should do that much to sustain the society. One visit to the fair grounds, upon either of the days of exhibition, would amply repay them for the price of the life membership; and every man would feel some satisfaction in knowing he had done his part in advancing the welfare of a society which all acknowledge is an honor to the county.

The society are in hopes of obtaining a sufficient sum this year from life members, and from the receipts at the fall exhibition, to warrant the erection of a large and commodious building, in which the fruits, manufactures, and other articles can be shown. Such a building is very much needed; but the society do not feel that they should incur that expense, until all the land is paid for. The receipts of the last year paid all the expenses incurred during that year, and it is to be hoped the same success will attend the operations of the society the present year.

Since the formation of the various town societies, many persons have looked upon the county society as antagonistical to the interests of the various town societies, which is not the case in any particular. The exhibitions of the county society should now become the place where all the live stock and articles which may have taken premiums at the local exhibitions, should compete with each other, and in that manner our exhibitions would take a rank higher than those of any other county in the State, and in

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a short time would compare very favorably with the exhibitions of the State Society.

The officers of the society lay before the farmers of the county this short history of the operations of the society, and ask the co-operation of every one of them in furthering the efforts of the society, and thereby enabling it to extend and enlarge its sphere of usefulness.

ANNUAL MEETING, FEB. 8, 1855.

The committeee appointed to take into consideration the subject of locating the New-York State Agricultural Society, beg leave to report the following resolutions:

Resolved, That it is the opinion of this Society that the present system of making the fairs of the State Agricultural Society itinerant is highly prejudicial to its prosperity and usefulness.

Resolved, That we earnestly recommend the State Society to permanently locate their fairs at some central point, say either Utica, Syracuse, or Rochester.

On motion of J. S. Bates, the following was also unanimously adopted.

Resolved, That the delegates from this county to the State Society be instructed to propose such an alteration in the constitution of the State Society that its business shall be performed by delegates from the county societies, each county society electing three delegates. One-third of the delegates thus elected shall be necessary to form a quorum for the transaction of business.

Officers for 1855.—President, William Hildreth, of Phelps. Vice Presidents—Harvey Stone, Gorham; E. M. Bradley, Bloomfield; B. T. Case, Bristol; Wm. Johnson, Seneca; S. Powell, South Bristol; Hiram Colgrove, Canadice; E. B. Pottle, Naples; Cyrus Gates, Hopewell; Albert Westfall, Phelps; John B. Cooley, Canandaigua; E. B. Dewey, Manchester; T. U. Bradbury, Farmington; C. H. Mason, Richmond; Wm. D. Dickenson, Vic-

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tor. Henry Howe, Corresponding Secretary; John S. Bates, Recording Secretary; James Cooley, Treasurer.

Town Committees.—Three for each town.

Constitution.—We, the subscribers, do hereby agree to form ourselves into an association, to be known as "*The Ontario County Agricultural Society,*" for the purpose of promoting the science of agriculture among the farmers thereof.

That the said society shall be organized by the election of one president, one vice president from each town in the county, one recording secretary, one corresponding secretary, one treasurer, and an executive committee, to consist of three members from each town in the county, who shall collectively form the executive board.

The aforesaid officers of the society shall be elected annually, at the meeting of the winter fair or exhibition.

That the president, or in his absence, one of the vice presidents, and one of the secretaries, together with at least one of the executive committee or vice president, from at least five towns in the county, shall be necessary to constitute a quorum for the transaction of executive duties.

That the executive duties shall consist in making the appointments of the days for the annual fairs and exhibitions; making a list of premiums to be awarded on the occasion; appointing the several committees of inspection, for making examinations on the various articles presented, and awarding the premiums thereon; collecting the moneys, and other means and devices, to pay or confer the complimentary awards of those premiums; and to provide all other necessary means for preparation, and for superintending and managing the annual exhibitions and fairs of the Society.

That the duties of the president are to superintend all the concerns of the society, preside at all its meetings to call meetings

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of the executive board, through the corresponding secretary, and to deliver an address on the subject of agriculture at the annual exhibition, or procure an address to be delivered.

That the duties of the vice presidents are to assist the president in the performance of his duties; with him (or in his absence) to form a board of inspectors to conduct the annual election of officers of the society; and one of them to preside at the meetings of the society in the absence of the president.

That the duties of the recording secretary are, to keep a regulalar record of all the transactions of the society, its elections, list of premiums, awards of the same, and prepare for publication such proceedings of the society as shall be required.

That the duties of the corresponding secretary are, to hold a correspondence with the officers and members of the society, also with other societies and persons.

That the duties of the treasurer are to receive the subscription moneys, and also the annual dues of the members, and other donations; to pay out the same for premiums awarded, and for the contingent expenses of the society, on the order of the president; and to render an annual account of the same to the executive board.

That any person, being a resident of the county of Ontario, subscribing to these articles, and paying one dollar, shall be constituted a member of this society, and by paying one dollar yearly to the funds thereof, shall be continued a member, and as such shall be entitled to become a competitor for any of the pemiums, and to vote at the annual election of its officers.

The subscription, and payment of ten dollars at any one time, shall entitle the subscriber to a life membership of the society.

This constitution may be altered or amended by a vote of a majority of the members present, at any annual meeting of the society.

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ORANGE.

The annual exhibition of the Orange County Agricultural Society took place in the village of Chester, on the 20th and 21st days of September. As usual, a very large concourse of people were in attendance, and the place, being on the New-York and Erie railroad, attracted visitors from other parts of the country.

The large tent of the society was erected near the center of the village, and near it were the pens for sheep and swine, while the cattle were in the adjoining fields and orchards. The display of stock was fully equal in numbers and quality to that of any previous exhibition, and afforded evidence that the rich pastures of Bloomingrove and Chester can offer successful resistance to the severest drouth ever known in this country.

A large number of working oxen were on the grounds and two teams of six yoke each, attracted general attention. But a few fat cattle were on exhibition; but the deficiency in numbers was fully made up by the quality and condition of the animals present. Bulls, cows, and young stock formed the principal part of the cattle show. These were nearly all Durhams, crossed with natives, and a very few of such animals may be said to form the sum and total of the improved stock of Orange county. But very little attention has been paid to improved breeds; the butter makers and milkmen preferring the native cows to any other. While it is generally admitted that a cross with Durham will greatly improve the quality of calves for market or cattle for fattening, no desire is manifested to introduce any of this blood into dairy cows.

About the usual number of sheep and swine were offered for premium, but the number of entries in these classes is seldom very great. Our fairs generally bring out a few long wooled and South Down sheep, and Berkshire hogs, but the county is sadly deficient in good breeds of these valuable domestic animals. Farm implements are never exhibited to a great extent, and nearly all the good articles in this line used in the county, are made in other parts of the State.

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Agricultural productions and fruit have been so severely affected by the drouth that the display in these departments was less than ever before. There were a few specimens of grain and vegetables, and some beautiful grapes, but the show in this respect was as we had reason to expect.

The exhibition of horses, however, showed no want of spirit or fear of competition. While drouth affected the show of produce, and inattention to improved breeds of cattle rendered our fair inattractive to some, the quality of the horses of the county is unsurpassed. For the last few years great care has been manifested in the breeding and rearing of these useful animals, and it is now generally admitted that the young horses of Orange county are not exceled in symmetry and beauty, as they are certainly unequaled in speed and bottom. The horses were shown in a field containing a well beaten track, one-fourth of a mile round, and on this course there was a spirited competition during the whole of the two days of the fair. Stallions, matched horses, and geldings, mares and colts, were all represented by good representatives.

The plowing match was dispensed with this year, and a public sale of stock and articles substituted. This took place on the second day, but bidders were few and the sale rather dull. The finances of the society are in a flourishing condition, about $400 being offered in premiums, and a surplus of about $200 is in the treasury.

Officers for 1855.—John H. Morris, of Goshen, President; a Vice-President from each town; an Executive Committee of five; Corresponding Secretary, Hamilton Morrison, of Montgomery; Recording Secretary, John C. McConnel, of Goshen; Treasurer, Wm. M. Sayre, of Goshen.

In accordance with a provision of the constitution of the society, the next fair will be held in Goshen.

HAMILTON MORRISON, *Cor. Secretary.*

Montgomery, Dec. 30, 1854.

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Hamilton Morrison writes as to crops:

MONTGOMERY, ORANGE CO., *Dec.* 26, 1854.

B. P. JOHNSON, Esq.:

Sir—I received a circular from you a short time since, calling my attention to several inquiries in relation to the agricultural condition of Orange county. Circumstances have prevented me from replying to the circular before. I regret to say that I am unable to answer your inquiries as fully and as accurately as may be desired. I furnish you, however, with the following facts and observations, some of which may be interesting, and which are believed to be as near correct as can be ascertained; premising that you may make such use of them as you see proper.

Orange county is situated on the west side of the Hudson river. The Shawangunk mountains stretch across its western corner, and skirt its north-western side, while in the south-eastern part are the elevated range known as the "Highlands of the Hudson." The central and northern parts are agreeably diversified with hills, of easy grade, and broad and fertile valleys. Its principal streams are Murderer's creek and the Otterkill in the east, the Walkill and its tributaries in the center, and the Neversink and Shawangunk in the western part. Its county buildings are located at Goshen and Newburgh, its shire towns, the former near its center, and the latter in the north-eastern part.

It was organized as early as 1683, and included within its bounds the present county of Rockland. In 1798 Rockland was set off from it, and five towns from Ulster county added, which made it of its present dimensions. It now contains 17 towns, comprising an area of about 760 square miles, or 486,500 acres.

The following table exhibits the assessed number of acres, the value of real and personal estate, the total amount of State, county, and town taxes, taken from the statement of the board of supervisors for the present year; and also the number of farms, the number of dwellings, and the population of each town, taken from the census returns of 1850.

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TABLE.

TOWNS.	1854					1850		
	No. of acres.	Real estate, valuation.	Personal estate, valuation.	Total valuation.	Total tax.	No. of farms.	No. of dwellings.	Population.
Blooming-Grove,	21,042	$1,010,016	$259,113	$1,269,129	$4,489 68	159	394	2,184
Cornwall, ...	24,277	645,479	108,850	854,329	2,923 29	153	640	4,471
Crawford, ...	24,373	682,444	135,091	817,575	2,726 64	195	316	1,912
Chester, ...	15,516	717,484	200,425	917,909	3,102 87	87	288	1,642
Deerpark, ...	37,861	1,476 349	207,830	1,684,179	6,998 14	128	705	4,032
Goshen, ...	22,594	1,242 670	446,999	1,689,669	6,780 47	191	516	3,150
Greenville, ...	17,598	458,604	28,990	487,694	1,639 18	Included in Minisink.		
Hamptonburgh,	16,517	660,680	135,709	796,389	2,510 88	131	214	1,343
Minisink, ...	14,040	543,520	81,360	624,880	2,111 83	501	976	4,985
Monroe, ...	78,260	1,105,640	136,845	1,242,485	4,243 76	279	768	4,282
Montgomery, ...	30,718	1,413,028	352,514	1,765,542	5,570 10	267	632	3,938
Mount-Hope, ...	15,809	563,529	53,265	616,794	2,191 30	146	303	1,512
New Windsor, ..	21,347	908,116	379,705	1,287,821	3,783 07	192	379	2,457
Newburgh, ...	29,332	3,675,125	2,819,902	6,495,027	23,225 24	318	1,727	11,417
Walkill, ...	40,348	1,734,964	508,101	2,243,065	8,600 34	306	909	4,942
Warwick, ...	51,566	1,735,770	270,338	2,006,108	6,651 96	426	918	4,902
Wawayanda, ...	19,581	744,925	135,600	880,525	2,759 34	Included in Minisink.		
Total, ...	480,779	$19,318,343	$6,270,637	$25,679,120	$90,308 00	3,479	9,685	57,164

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It may be proper to add, that the assessed valuation is not considered more than three-fourths of the real value, which would give nearly $26,000,000 as the actual value of the real estate in Orange county.

Some opinion, though it may be partial and imperfect, of the rate at which the value of the real estate in the county is increasing, may be formed from the following table, exhibiting the assessed valuation of real estate in the county, and the increase per cent. for each year since 1845, observing that the wide difference between the valuation of 1850 and 1851, was owing to the adoption of a new method and higher rate of assessment:

1846,.....	$9,192,914
1845,.....	9,067,327
Increase,.....	$125,587
Increase per cent.,.....	01,385
1848,.....	$9,294,155
1847,.....	9,158,336
Increase,.....	$135.819
Increase per cent.,.....	01,483
1850,.....	$9,666,635
1849,.....	9,537,313
Increase,.....	$129,322
Increase per cent.,.....	01,356
1852,.....	$18,508,819
1851,.....	18,367,913
Increase,.....	$140,906
Increase per cent.,.....	00,746

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1854,.....	$19,318,343
1853,.....	18,751,209
Increase,.....	$567,134
Increase per cent.,.....	03,024

The census of 1845, returned 302,244 acres of improved land in the county; that of 1850, returned 315,795, being an increase of 13,551, or nearly .045 per cent. But the census marshals of 1850, returned only a total of 423,698 acres, being 57,081 less than the number assessed by the supervisors.

In 1845, less than 75,000 acres were reported as having been actually cultivated with grain and roots that year, leaving, in round numbers, 225,000 acres, or about ¾ of the whole amount of improved land, devoted to cutting hay and pasturage. The returns of 1850, gave a less amount of all kinds of grain, with the single exception of rye, than were reported in 1845, from which it may be inferred, that the number of acres, devoted to grazing, has increased. Of the 64,511 neat cattle in the county in 1850, 38,938 were returned as milch cows, a number exceeded by only two counties in the State, (Oneida and Jefferson). The number of pounds of butter reported, was 3,769,034, which, valued at 21 cents per pound, was worth nearly $800,000, a sum nearly equal to the combined value of all the grain and root crops of the county in that year; add to this the value of the milk produced and sent to market, and it may be safely assumed, that *the products of the dairy, are the chief products* of this county.

I have no means of ascertaining with any certain degree of accuracy, the increase or decrease of these products the present year. The severe and protracted drouth of the past season has undoubtedly, lessened, and perhaps materially lessened, the amount of dairy products. But in ordinary seasons, I think, the amount of butter made now is somewhat greater than it was in 1850. It is true, that a comparison of the two censuses of '45 and '50, exhibits a decrease of 339,806 pounds, or more than .08 per cent. But this may be attributed to the opening of the "Milk Business" to our farmers by the N. Y. and Erie railroad. And, although that

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business is still constantly increasing, its increase is confined to that section of the county, which lies immediately adjacent to that great thoroughfare and its tributary (the Newburgh branch), and does not materially affect the butter making in the other parts of the county. Farmers generally realise for their milk, in summer, from 2 to 2½ cents per quart; in winter, from 3 to 3½ cents. The cost of transportation may vary at the different stations, but will not differ far from half a cent per quart. The greater part of the butter made in the county is shipped from Newburgh on the Hudson river, 60 miles north of New-York; access to Newburgh being made easy by the construction of the Newburgh branch and Erie railroads, running through the eastern and southerly parts of the county, by the Newburgh and Ellenville plankroad, and the Newburgh and Coshocton turnpike, running through the northern towns. The general price realised by farmers for their butter, the past season, has been from 22 to 25 cents per pound, though considerable has been sold for higher figures than these. The expense of transportation from Newburgh is about 12½ cents per firkin, to which, when unconsigned, .03 per cent commission is added, making the whole expense range from 62½ to 75 cents per firkin, or about .04 per cent of its value. A large proportion of the butter made, is however packed in pails and tubs, and marketed as soon as manufactured.

Some opinion of the importance and quantity of the grain products of the county, may be deduced from the following table, compiled from the censuses of '45 and '50, exhibiting the number of acres sowed with each kind of grain, and the quantity produced in 1845, the quantity produced in 1850, and the increase or decrease per cent.

9,010	acres sowed with	wheat,	prod'g	82,881,—	in 1850,	46,527,	decr'e	44	per cent.
14,646	"	oats,	"	417,388,—	"	390,834,	"	06	"
19,696	"	rye,	"	191,864,—	"	292,926,	incr'e	53	"
18,442	"	corn,	"	603,167,—	"	491,674,	decr'e	18	"
7,112	"	buckwheat,	"	111,671,—	"	90,749,	"	19	p. c. nearly.
3,202	"	potatoes,	"	173,018,—	"	148,331,	"	14	"

Since 1850 there has been a marked increase in the number of acres sowed with wheat, and (excepting the past season because of the severe drouth) a marked increase in the quantity produced. The variety that is principally cultivated is the Mediterranean,

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though the Soule and White flint are to be found in some localities. It is thought that the cultivation of oats, rye and corn remains about stationary; buckwheat is probably diminishing. An increase is noted in the number of acres planted with potatoes, though not a corresponding increase in the quantity produced. The varieties cultivated are numerous, but the Mercer, Long pinkeye and Yam may be considered as the principal.

Indian corn, potatoes and buckwheat have suffered most from the protracted drouth of the present year. Intelligent and observing agriculturists have computed that not more than from one-third to one-half of an ordinary crop has been realized from these important products the past year.

The grain and root crops are principally consumed in the county, though formerly considerable quantities of corn and rye were sent to New-York via Newburgh, the freightage being about four cents per bushel.

You inquire the increase or decrease of the number of acres improved land. From 1845 to 1850 (as before shown) the number appears to have increased 13,551, or nearly 4½ per cent. So far as my observation extends this per centage has increased since 1850, and there is probably not less than 15,000 acres more of improved land now than there was at that time.

You inquire respecting the number, breeds, &c., of animal stock in the county. The number and increase or decrease per cent for the five years ending with 1850 is shown by the following returns:

	No. in 1845.	No. in 1850.			
Horses,....	10,226	8,262	Decrease,	1,954, or 19	per cent.
Neat cattle,.	59,712	64,511	Increase,	4,799, or 08	"
Sheep, ...	45,819	23,562	Decrease,	22,257, or 51	"
Swine,.	57,265	42,051	"	15,214, or 26½	"

Horses.—Perhaps in no portion of the State has the rearing of horses attracted and received more attention than it has done in Orange county for the last few years. Some of the best roadsters and purest thoroughbred stallions in the United States stand

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during the season in different parts of the county, among them "Black Hawk," a late renowned Long Island stallion, and the late celebrated "Cassius M. Clay," who took the 1st premium at the Springfield National Exhibition, both of which died at Montgomery, having stood there for two consecutive seasons. The consequence of this introduction of good horses is seen in the increased interest that has been awakened in the public mind in relation to this noble and useful animal, and in the great and rapidly increasing improvement that is taking place in our stock of horses. Young horses are being reared by almost every farmer, and the number of this stock is unquestionably on the increase. Here are to be found worthy representatives of most of the best improved breeds in the United States. Throughout the central and southern towns the "Abdallah" may be said to have surpassed all competitors, and to have risen higher in public estimation than any other. In the northern towns the "Black Hawk," "Star," "Clay," and "Morgan" families are numerous, and each possess many warm and devoted friends. The chief improvement that is being made seems to be a combination of speed with strength and symmetry.

Cattle.—Nearly all the milch cows in the county may be denominated "natives," although crosses of the Durham and Devon are frequently to be found. A large proportion of the milch cows, as well as other classes of cattle, are driven in from Ohio, and the western and northern counties of New-York. For dairy purposes the "natives" seem to be preferred by most dairymen; for market the Durhams and their grades are highest prized; for working oxen the Devons and Durhams, with their crosses, are generally preferred.

Sheep.—Orange county, (if it ever could have claimed the distinction,) has long since ceased to be a wool-producing county. As before shown, the number of sheep, then already small, had decreased more than 50 per cent during the five years preceding 1850, and it is generally thought that the number is still decreasing, though less rapidly. There are a few select and thoroughbred flocks of Bakewells, South Downs and Merinos, but the

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great mass of sheep are of what is termed the "Common" breed, that is, a mixture of all breeds and of nearly every grade. Numerous droves are brought in from the west, and disposed of in small lots to farmers, who keep them only long enough to fit them for market. For mutton, the breeds standing highest in public favor are the South Down and Bakewell, these combining the two great requisites—size and aptitude to fatten.

Swine.—Although a large quantity of pork, particularly "light pork," is fattened in this county, but very little attention is paid to the selection of breeds. With those who regard this matter, the Berkshire is generally esteemed preferable. A deep seated prejudice, however, exists in the minds of many against the color of their hair, which operates as a serious barrier in the way of their general introduction.

I regret to say that there is almost an entire absence of scientific attention to farm cultivation with the great body of our farmers. Individuals are occasionally to be met with who are applying science to agriculture, and I think the number of such is increasing, but they can be considered only as exceptions to the general rule.

Considerable attention has been paid to drainage. The attention that has been directed to this subject is increasing; its advantages depend so much on the thoroughness with which it is done, on the nature of the soil, the character of the season, and other circumstances, that its benefits cannot be definitely stated. It will, perhaps, be sufficient to say, that those who have commenced draining are almost uniformly continuing the system.

The value of farms in Orange county is decidedly on the increase, but the percentage of the increase cannot be ascertained.

The places at which the products of the county are marketed are Newburgh and Cornwall on the Hudson river, Chester, Goshen, Middletown, Port Jervis, and other stations on the line of the New-York and Erie railroad. Most of the products that are marketed at the various railway stations are taken to New-

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burgh by the Newburgh branch railroad, and shipped from thence to New-York, thereby shortening railroad carriage 35 miles.

The freightage on milk, butter and grain has been given. The expense of transporting beeves from Newburgh is $1 per head; of hay and straw $2 per ton, including both freight and commission; of flour, 25 cents per barrel; beef, 25 cents per quarter.

It only remains for me to repeat my regret in not being able to answer your inquiries more definitely.

Very respectfully, yours, &c.

HAMILTON MORRISON.

ORLEANS.

The annual fair and cattle show of the Orleans county agricultural society was held at Albion, the county seat of the county, on the 27th and 28th days of September, 1854, and was attended by a larger number of the farmers and citizens of the county than any previous attendance, which shows an increased anxiety on the part of the friends of agriculture to promote the prosperity of the society. The first day of the fair was devoted to the exhibition of horses, cattle, sheep, swine, fowls, and almost every variety of nature and art usually contributed at agricultural exhibitions. The variety, quantity, and number of specimens of the various branches of industry and art, were not as numerous as we could have wished, but did the highest honor to the contributors. The show of matched, single, and work horses, could not be exhibited as satisfactorily as was desirable, on account of the unfavorable situation of the ground selected; but they were very fine animals and did high honor to their owners. The other classes of horses were equal to our most sanguine expectations. The cattle exhibited were all very good as to blood and other qualities, among which was a two year old bull, cross of Durham and Devon, a very excellent animal, weighing about 1,600 lbs., owned by Daniel R. Jewett. The sheep and swine presented were of the

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best grades and qualities, but in number not quite equal to some previous years.

The domestic, ornamental, and horticultural departments of our society were represented by the presentation of some beautiful specimens of the handiwork and tasteful arrangements, by some of our enterprising ladies of the county, in presenting which they gave us the honor of their personal attendance; showing that although they do not attempt or intend to rule, that their attention, approbation, and presence is indispensably necessary in promoting the interest and happiness of their husbands and fathers, and also showing that they consider it an honor to exhibit to the public the productions of their own hands.

On the second day of the fair a plowing match was held, which was performed in a most spirited manner. There were only a few teams entered—less than was expected—owing, probably, to a heavy shower of rain the night before. The work was performed in a highly creditable manner, so much so, that it was with difficulty that the judges could decide who was the successful competitor. An interesting address was delivered in the court house, at one o'clock P. M., by Arad Thomas, Esq., which was listened to by a large and attentive audience, and was received with enthusiastic applause; after which the reports of the several committees were read and premiums announced.

Funds of the society.

Surplus of last year,	$166 44
Receipts this year,	328 15
	$499 59
Disbursements and premiums paid up to this date, Dec. 12, 1854,	330 71
	$163 88

ROBERT CLARK, *President.*

Kendall, Dec. 16, 1854.

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JONATHAN EDGCOMB'S TOUR IN WESTERN STATES.

Albion, Orleans Co., N. Y., March 25, 1854.

B. P. JOHNSON, Esq.:

Sir—I have recently returned after an absence of more than four months, on a tour in the western states, and feel myself well rewarded for all my trouble.

It is with pleasure I have to say, that in all the conversations I have had with gentlemen at the west, the State of New-York is looked to as the key to agricultural science, to unlock and develop, from the book of nature, those things which they have a special desire to put into practice, and I can assure you the farmers, in agriculture and horticulture, are rising with the majesty of a lion, and the strength of a Samson, with fervent hearts and willing minds, to put into practice those things which shall be for their greatest good, in all the rural departments of life, and for the good of all those who shall come after them.

The oak opening lands in Michigan, Indiana and Illinois, are a compact, sandy, gravelly loam soil, and the best adapted to growing wheat, as they produce the best quality; the prairies are best for corn, and the timber lands are the best for cultivated grasses, and will grow the various kinds of grain as well as the timber lands of the State of New-York.

When I left southern Michigan and northern Indiana, the wheat on the ground looked very well; but through northern Ohio, with very little exception, the wheat looked much winter killed.

There is a laudable spirit of emulation in the west, (as well as in this State,) to improve in poultry growing; and with well arranged poultry-houses in the south-west, the hens lay most of the time through the winter.

I saw in the north part of the State of Indiana, a good breed of swine, introduced by Hon. H. L. Ellsworth, of Lafayette, the the color white, and large size for the age.

I have had an opportunity, since my return from the west of looking over one of the last reports of the Transactions of the State Agricultural Society. I think it contains the greatest amount

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of valuable information, scientific and practical, of any volume that has been issued for a number of years. One article in particular, reported on by actual experiment, is of great importance, and ought to be known by every family; it is the report on salt for preserving meats for family use. As I lived many years on the bank of the river Thames, in my native town, near the city of New-London, Conn., I became particularly acquainted with all the different kinds of salt imported to this place—Liverpool, Rock, Turks Island, St. Ubes, Bonair, and Rum Key, (the latter in a small quantity;) and was personally acquainted with the method of putting up beef and pork for ship stores, for long voyages, and always accustomed to pure, sweet, and healthy meat; that after I came into the State of New-York, and came in contact with meat put up with salt made (at "Salt Point") by boiling, I found a great difference. I have long been of opinion that meat packed with boiled salt is deleterious to health; and although I have been settled in this State forty years, I have always used West India, or solar salt, made at Syracuse, which, for the last ten years, I have considered equally as good as Turks Island.

In my travels for the last twenty years, in western New-York and the western States, I have found families, occasionally, using meat cured with boiled salt, in casks and without, in so bad a condition it was not fit to be used for food for human beings; and there is no doubt, in my mind, that the use of impure provisions, for the want of pure salt and a sufficient quantity, oftentimes produces diseases, sickness, and death, which are attributed to other causes.*

I expect to move from this place at the opening of navigation on the lakes and canal, to Lagrange county, Indiana. My post-office address will be Lima, having purchased a farm there, in a pleasant, fertile part of the country. I hope hereafter to be permitted to give you some accounts of my experiments as a farmer in northern Indiana.

During my absence to the west the past winter, our venerable friend, Hon. John Delafield, has beeen called to close his earthly

* NOTE,—See Trans. 1853, p. 151, as to the improving boiled salt.

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pilgrimage, and all that was mortal is assigned to the tomb, and his spirit to God who gave it. He was a good man; his amiable deportment, his kindness of heart, his urbanity in all the departments of life, seem to cast a charm around him; his labors of love and his works of charity bespeak he was the man and the christian; may his virtues long be remembered, and his most excellent example imitated.

I will thank you most cordially if you will be so kind as to send me one of the N. Y. State Agricultural Soc. Transactions for 1852, as I feel to have a special interest for the Transactions for that year. If you can consistently spare to me one volume, and will be so kind as to give it into the hands of Mr. Church, the Lieut. Governor, he will deliver it to me on his return home to this place.

It was not in my province to be at the State Fair last fall more than one day, as business in Galway called my attention. And while there, in passing over the old farm I owned when residing there, on which was awarded to me the first premium of the county, "for the best improved farm, including crops and farm-implemements," in the year 1826, I saw, with some regret, a retrograde far from what it once was.

Accept of my grateful acknowledgments for your brotherly kindness, in sending me the little journal from your office. It is with no ordinary emotion I retire from the Empire State, in which I have dwelt all the active business days of my life, yet I do it most cheerfully, with an ardent hope of benefiting my interest, and the best interests of the tillers of the soil, in the country where, hereafter, I expect to reside. Should I live to get settled in the State of Indiana, you may expect to hear from me through the ordinary channels.

With sentiments of respect to you, and to your associates, who are laboring to promote the best interests of our State and Nation in agricultural science, I tender the warmest emotions of my heart, for your prosperity, health, and happiness.

Yours in friendship,

JONA. EDGCOMB.

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B. P. Johnson, Esq.:

Your circular of the 23d October was duly received, and should have been answered before this late day had I been possessed with the necessary information. It is more difficult to answer the questions you propound this year than usual; but I will answer you from the best information that I have been able to obtain.

Question.—1. What is the average per acre of the following crops?

Ans.—Wheat, 10 bushels; Indian corn, 20; oats, 30; barley, 30; rye, 20; buckwheat, 10; potatoes, 70; peas and beans, 15; flax seed, 8; hay 1½ tons; fruit, good.

Q.—2. What has been the diminution of crops by drouth?

A.—Potatoes and buckwheat, one-half; corn and oats, one-third; other crops, not very much, but all more or less.

Q.—3. To what extent (if any) has the wheat crop been injured by the fly?

A.—The fly, or "midge," has destroyed *two-thirds* of the crop, or nearly that, and in some localities nearly all.

I am of the opinion that draining land is *one of the great secrets of successful farming;* but, we have had but little experience as to the effect of draining upon drouth, we cannot give a definite answer, but are of the opinion that it is highly advantageous in all cases.

The state of farming in our county is very much improving, notwithstanding we have to contend with two destructive causes the same year, which we fondly trust may not happen again for years. Our attention has been for years mostly turned to the culture of wheat; but it appears that we must give our attention more largely to other crops, to which our soil is readily available.

Yours truly,

ROBERT CLARK.

Kendall, *Dec.* 16, 1854.

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OSWEGO.

The 15th annual fair and cattle show was held in this county on the 27th and 28th of September, 1854, at Central Square, town of Hastings; there was an unusually large number of persons in attendance. Although our county is comparatively new, and young in improvement, yet perhaps no county in the State is improving faster, and showing a deeper interest in agriculture than Oswego county. The exhibition as a whole, was a good one, considering the drouth just preceding it. There were some very good blooded cattle in attendance. The Hon. Joel Turrill, of Oswego, had a very superior blood bull on the ground, to which was awarded the first premium; also other blooded cattle of a superior quality; he also exhibited a very superior Black Hawk colt, perhaps one of the finest in the State, to which was awarded the first premium. Judge Turrill has done much to encourage the society, and promote the fair, and our citizens are beginning to appreciate his efforts. Hamilton Murray, Esq., ex-president of the society, had some very fine stock on the ground. Mr. Murray has for years, been untiring in his efforts to improve the society and promote its welfare, and we are indebted to him, more perhaps than to any other man, for its present flourishing condition.

The show of horses excelled any thing that has preceded it. The competition in working oxen was small; one yoke, belonging to Mr. Rowe, of Constantia, was awarded the first premium; another yoke, owned by Jacob Bebee, Central Square, superior workers. The show of hogs was small, but of first rate quality. Our farmers, in the sheep department, are not up with other counties; we had however, a few specimens of very fine wool, also some good specimens of mutton sheep.

In domestic manufactures there was a great want of competition; one reason assigned by our "fair ones," was, that there were so few cash premiums offered in their department, that they preferred cash to Norton's Scientific Agriculture, Transactions of the American Institute, or even to Youatt; I therefore recommend, that they be offered liberal cash premiums in future. Manufac-

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tures, farm implements, &c., were very good, showing great skill and enterprize in our mechanics.

In the dairy department there were some excellent samples of butter and cheese, but competition small. There were some very fine fowls, of the different breeds, showing an increased interest in eggs and chickens. The display of fruit was very fine, showing unmistakable signs of deep interest and rapid improvement. This is as it should be, we have a fruit county, perhaps excelled by few in the State. The varieties exhibited were respectable, and the quality very superior: J. Pierce, and wife, of Oswego city, had on the table a very fine quality of peaches, of their own raising, nearly equal in size, flavor, richness, and appearance to the celebrated Jersey peach; R. Oliver, also of Oswego, presented some very fine quinces, peaches and grapes; best assortment of fruit, J. Turrill. The vegetable department, in the gardening line, was well represented; S. Carter, of South Richland, showed some splendid watermelons, which on being divided, tasted as well as they looked.

A variety of potatoes, of very large size and excellent quality, was displayed, which looked fairly tempting. Most of the field crops were lean; some reports however, were very creditable. Mr. Clark Kenyon, of Hastings, chairman of the committee on field crops, reports that J. Babcock, of Volney, verifies a statement as follows, to wit: That he raised on his farm the present year, on two acres of land, 243½ bushels of corn; on two acres of oats, 112½ bush.; on two acres of spring wheat, 49 bush.; and 49 bush. of buckwheat on one acre. The corn grew on green sward of gravelly loam, thirty-five loads stable manure applied; plowed about the 25th May, nine inches deep; cultivated, then harrowed and marked out both ways three and a half feet apart; variety planted, twelve rowed yellow corn; planted the 29th of May; cultivated once in a row both ways before each hoeing; put on ten bushels of lime, ashes and plaster mixed, before the first hoeing; cut the corn up by the roots the last of August, and husked it in October; measured the whole crop, and weighed every tenth basket, total weight, 18,239 lbs., allowed 75 lbs to the bushel. Mr. Kenyon, the chairman, truly says, "the statements furnish

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some useful hints, but more facts are needed to show that so much corn can be raised per acre, and how to do it. The science of agriculture is what we want, and must have, or we cannot practice it."

The committee on farms unanimously awarded the first premium to the farm of J. N. Holmes, of Hastings Center. The committee report, "that Mr. Holmes moved on to this farm of 144 acres, about ten years ago. It was then overgrown with briers, bushes, and foul stuff; fences decayed into rotten ruins, and the farm abandoned by the owner as almost worthless. The briers, bushes, &c., under his management, have disappeared; good and substantial stone wall, laid in a trench ten inches deep, compose much of the road fences, and the farm is in a state of good cultivation. It produces heavy crops of hay, and almost every kind of grain is grown successfully. Mr. Holmes uses good plows (with sharp points), drawn by strong, well fed teams; he plows deep, tills his soil well, draws his barn-yard manure out on his land, and plows it under, instead of letting it waste by the rain and sun. He keeps his cattle growing fatter instead of poorer during the winter. Suffice it to say, he is a thorough farmer. It is a favorite saying of his, 'that in this country there is little or no poor land, if properly cultivated.' The committee feel proud to recommend this saying of his, as being of immeasurable importance to the farming community."

Gardening is receiving increased attention in Oswego county, and farmers are learning that half an acre of garden land, tilled as it should be, is frequently worth more than four acres on some other part of the farm.

The plowing match was held on the second day of the fair, within the enclosure of the fair ground. There were five or six competitors in the match, most of whom acquitted themselves with honor. The attendance of spectators was very large, a deep interest was felt, and the excitement was immense. The first premium was awarded to John Smith, an Englishman, about 50 years of age. The Yankees intend to beat him next time.

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On the evening of the first day of the fair, the society listened to an able address on horticulture, from the Rev. E. Lord, of Fulton. It was full of interesting and useful matter, and was calculated to benefit and promote that interesting science. On the afternoon of the second day, a very large audience listened attentively to an address from the president, on practical farming. Both of the addresses have since been published, by the request and at the expense of the society, in pamphlet form, to be distributed among its members..

Officers for 1855.—J. N. Holmes, Hastings Center, re-elected President; Hon. Joel Turrill, of Oswego, and Jervis N. Dewey, of South Richland, Vice Presidents; Mr. Conklin, of Mexicoville, Treasurer; S. H. Skinner, Esq., of Mexicoville, Recording Secretary; George T. Peckham, of Pulaski, Corresponding Secretary.

In conclusion, let me say, that the farming interest in Oswego county, is rapidly improving under the influence of this society.

J. N. HOLMES, *President.*

ADDRESS, BY J. N. HOLMES, PRESIDENT.

Farmers and Mechanics, Ladies and Gentlemen:

We have met together in this associate capacity for mutual improvement. We are far removed above the brute creation, by superior intellectual endowments. Reason is the grand engine, peculiar to our race, by which we conceive, mature and execute our plans; indeed, it is reason that places man upon the capstone of the scale of beings, and gives him power over the entire animal creation. Improvement in the arts and sciences is but another name for practical reason, and it is this that distinguishes us from the heathen world. Improvement, then, as applied to human actions and pursuits, is the great standard around which we should desire to gather; it is worthy of our noble sires—it is worthy of their noble sons. It is for improvement that we have left our fields and our homes, and have come here to-day, in this delightful capacity, to contribute to each others stock of intelligence, in that grand *pursuit* of *pursuits*, agriculture.

Every heart must have been made glad this day, to witness the rich display of the farmer's products, and the improvements in

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the implements of husbandry. An agricultural society is but another name for a farmer's school for mutual improvement. Here we may compare notes, we may avail ourselves of the experience of others, and not fail to profit by it. Who does not rejoice to be a member of the great agricultural school of Oswego county? This is the farmer's general experience society, for mutual benefit; and let us not fail to act well our part, and make liberal contributions to this great annual gathering. That man is selfish indeed who comes here like the bee to the flower, to draw out instead of adding to this public enterprise. As has been already hinted, this is the farmer's mutual benefit society, a society, or school, peculiar to itself, where the scholars are all teachers, and the teachers all scholars. Every intelligent farmer annually learns from the experience of his neighbor, and teaches his neighbor in return. Agriculture or farming is the grand basis of all civilized society. Indeed, it is the foundation of every enlightened enterprise. When farming is prosperous commerce extends, canals are dug, railroads are built, and the arts and sciences flourish. Agriculture, then, is the great nursing mother of individual and national prosperity. A question, of the first magnitude to all, is, how can it best be promoted? In the first place, it is very clear that it cannot be done by ignorance; for he who tills his soil in ignorance, and sows his seed at random, will evidently be likely to gather straw and measure chaff. The farmer, ignorant of his business, will succeed no better than the mechanic without a knowledge of the principles of mechanism. Every good farmer becomes such only by practical observation and experience. Book knowledge, as a dependence, often proves disastrous, while the same knowledge, as a help, may always be useful. The student, in retiring from the halls of science, may vainly suppose himself at the summit of the hill of science, when in fact he has but small means to help him up the hill. Indeed, he is like the young tradesman, with limited means, whose success depends very much upon the practical use he makes of his capital. Book knowledge, then, must be used, and can only be beneficial as a help, in the ordinary business of life. Knowledge, alone, is a dead letter, but experimental practice gives it life. The farmer who discards book knowledge entirely, because he

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cannot make it his dependence, is like a four horse teamster, with a load at the foot of a hill, who takes off his leaders because they cannot draw it up alone. If a farmer can have but one, he should certainly have practical knowledge, but it is better to have book and practical knowledge (like the Siamese twins,) inseparately connected. It is evident, from what has been said, that the farmer or mechanic should let no opportunity pass unimproved, to obtain a more perfect knowledge of his business. In this way he will annually add much valuable capital to his stock. It has long since passed into a proverb, that "habit is every thing." Admitting that the power of habit is controlling and irresistible, it may be well, perhaps, for us to consider a few habits, indispensable to a successful farmer, as well as to every other trade or profession. In the first place, *industry*, is a habit of primary, or of the first importance. Indeed, it may be considered one of the main secrets of success; without it a train of serious, if not fatal consequences follow; without it, the farmer's idle hours are many; his briers, alders, and noxious weeds, are also many. Surely idleness is a productive soil, a hot bed of cancers and cankerworms, to drink up the life-blood of the farm, and eat out the substance of the farmer. Indeed, we are more than fortunate if we have not the living proof of this in our own prosperous county of Oswego. With industry the farm is kept free from "foul stuff," the orchard is trimmed and grafted, the fences are kept up, buildings in good repair, and the stock are fine and thrifty.

Another habit of importance to farmers and business men is *vigilance*. This is indispensable. It requires the utmost vigilance, after once putting things in order, to keep them so. The third habit worthy of consideration is *economy*. Show me a farmer with good practical economy, and I will show you a successful husbandman. By economy here is not meant parsimony, far from it! good economy is another habit entirely, indeed it is but another name for the wise management, and division of time, strength, and means. He who attends closely to these will find success to be a legitimate consequence. Again, *perseverance* is a habit which claims our nursing care, and lively attention; without it, we are discouraged with a drouth, and disheartened by a

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flood; we are tired of the cold in winter, and overcome by the heat of summer; the autumns are too bleak and stormy, and the springs are too backward and chilly; indeed, without perseverance untiring, we are tempted with the change of seasons to change our business; and vainly seek pursuits which have less difficulty, trouble, or care; but this will never do, untiring perseverance made a Webster and a Clay, two of the greatest statesmen of their age. It made a Dr. Nott and the learned Blacksmith, two literary prodigies of America. It made a Delafield, a Wadsworth, and a Sherwood, among the first farmers of the Empire State.

Gentlemen, let us not be discouraged. Perseverance is as abundant, pure, and active, as when the above-named worthies first partook of its unfailing fountain. Yes, perseverance still lives to overcome and conquer. It has been denied that perseverance conquers all things; and to prove this, we are cited to Napoleon's march against Russia. But let us look at this a moment; who does not know that Napoleon's march against Russia was caused by a perseverance, poisoned by ambition, which is nothing less than sheer rashness. In all human probability, had Napoleon listened to the wise counsels and warnings of his noble Josephine, he might have avoided that disastrous fall, and his final overthrow. Surely it might be well for us to heed more the wise counsels of our beloved Josephines, and thus peradventure, avoid the fate of the great Napoleon. Perseverance, then, wisely directed, tempered with prudence, should claim our first attention.

The fifth habit which you are invited to consider, is that of *abiding at home.* Every good farmer understands this, and practices accordingly. The immortal Franklin said, "He who by the plow would thrive, himself must either hold or drive." There are exceptions to almost every rule, but this is a living principle. Few men, if any, can farm it successfully, without abiding on their farms. Whenever we find a farmer much away from home, especially if he is spending his valuable time in bar-rooms, lounging in stores, and the like, gaining nothing useful to himself, or beneficial to his family, we may rest assured that his farm will appear neglected, his stock poor and miserable, his land tilled by

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boys, and everything seeming to conspire to make up the term *shiftless*. It has been well said, that if a good lawyer will keep his office, his office will keep him. It may indeed be emphatically said, that if a good farmer will keep his farm, it will not only keep him, but his friends also. It is by no means necessary that a farmer should make a slave of himself; the actual amount of labor that he does is of less importance to his success than his watchful care. It has been truly said of religion, that a man needs to watch as well as pray. So the farmer should watch and pray, as well as labor. No man, after putting in a crop well, should leave his field without praying for plenty of rain and an abundant harvest; *especially these dry seasons.*

The sixth and last habit which we shall name, seems to be the very keystone to all the others—and that is to be *thorough*. Do your work well; don't try to carry water in a basket; work, once well done, is twice done. An anecdote occurs to me, which it may be well to relate, illustrative of this point. One of the most careful and thorough farmers of Herkimer county, found on going out in the morning to feed his hogs, that in putting up the bars the day before in a hurry, he had neglected to wedge them fast. As the cornfield was next to his pasture, his swine had rooted the bars down, and were in the cornfield; of course, he was very much vexed with himself. Stopping for a moment, he looked at the bars, and then jumping clear from the ground, he screamed, "I ain't thorough! I ain't thorough!" Possibly some of us may have had occasion to say the same. The last that was known of this man, was, that he had made himself independent by being thorough. "Let us go and do likewise." The best interest of the farmer requires him to be thorough in everything. When he builds a wall on a heavy soil of land, let him dig a trench, and lay the foundation sure; bank it well, and it may stand to benefit generations to come. When he builds a fence, build it to stand during his pleasure. We all need to do our work well; our plowing, particularly, should be done with great care; as a general thing, it may perhaps be emphatically said, in this department of farming that we are not thorough. In the first place, on most of our land, we need a strong, well fed and well trained

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team, which can take the draft with ease; secondly, we need a good plow, one that will do execution, (with a plenty of new points,) that will cut up the ground and turn it over. There is no economy in rooting away with an old, worn out point. We may do poor work with good tools, but it is certain we cannot do good work with poor tools. If we do our work well, when the plow is badly worn we can afford to get a new one; whereas, if our work is but half done, we never can afford a new one, and if we get one at all must run in debt for it. But a good team and plow will not do the work without a good hand to manage them. It will not be disputed, perhaps, that most teamsters use too heavy a lash, and carry too heavy a hand with their teams. Good teams, with gentle usage, will mind better and work better than with harsh treatment.

With these three, called the farmer's grand trio, viz: a good teamster, team and plow, *man well paid, team well fed*, we may reasonably expect the work to be done thorough. Perhaps most men plow their land too shallow. In these dry seasons, especially, we need to plow from six to ten inches deep, according to the soil. This prepares the ground for either a wet or dry season. Subsoiling for this purpose, is fast gaining favor. The time of plowing land depends very much on the soil. I would plow and sow light, dry, and sandy soils early enough in the spring to give the crops the benefit of early rains. I would avoid as much as possible plowing heavy stubble land when too wet. A heavy clay soil needs to be plowed in the fall, and receive the action of the frost of winter to pulverize it. The worms injure my corn less planted on fall-plowed green sward, than sward spring plowed. Teams are generally in better condition to plow in the fall than in the spring. I prefer to have a sward furrow turned over at an angle of forty-five degrees, than to have it turned over flat. It is in a better condition to rot for the first crop, and also to mix by the next plowing. Land is generally considered, after being well tilled, in a good condition to to sow when the dust flies. When our land is thoroughly plowed, too much pains cannot be taken to obtain and sow good seed, clear from "foul stuff," for without this, a good crop is impossible. Indeed, the farmer's watch-word, from early dawn to early dusk, should be *thorough! thorough!!*

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The six habits to which reference has been made, are indispensable to a good and successful farmer, to wit: Industry, to get things right; Vigilance, to keep them so; Economy, with frugality, to save what you get; Perseverance, to overcome obstacles, and surmount difficulties; Abiding at home, to take care of affairs; and to be thorough. Do things twice, by doing them well once.

With regard to cattle, there are three kinds or classes, worthy of our attention, viz: workers, feeders and milkers. A good rule for workers is to have hardy, sizeable oxen, which will do the most work on a given amount of food, in a given time. The rule for feeders, is to seek those which are hardy and sizeable, and will fat for market soonest, on a given amount of food, in a given time. For milkers, we need hardy cows, with less regard to size, which give the largest quantity, and the best quality of milk, on a given amount of food, during the longest time in the year. There is a great difference in cattle, but when we find the above named qualities, with but little regard to blood, we have found the great object of search. Much may be said in favor of the Devons, the Durhams, Ayrshires or Herefords, crosses or natives; but the above rules are well nigh infallible. Let us then be thorough in our selection of stock, and thus save feed, and make money. With regard to horses, we need to have strong hardy animals, large size for workers, common size for roadsters, which combine speed with power and endurance. Some are in favor of Black Hawks, some of Morgans, some of Golden Farmers, Messengers and Bluchers; but the aforesaid qualities comprise the proper objects of search. As to swine, we need those that can convert the least corn into the most pork; and September and October are the months to do it in. Hogs should be kept during the heat of summer, in a pasture well watered and shaded, and on food the best calculated to promote their healthy and thrifty growth. The fashion of requiring swine to wear a couple of jewels in the nose, should not only be encouraged, but absolutely required of them. On, or about the first of September, they should be confined in a small pen or yard, where they can get to the ground, orh ave dirt or soil thrown in to them. They need regular feeding, by a man of experience and good judgment. Boys will do to

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feed pigs pumpkins, but not to fatten hogs. During the last two weeks fattening, it is economy to feed hogs old corn meal, (all the better if cooked) and cold water, which will both harden and sweeten the pork.—Old Governor Hunt, of Vermont, said to a friend of mine, many years since, "that he always felt poor if he did not have old corn enough left over, to fatten his pork on." This remark is worthy of the highest regard. Those breeds of swine should be selected, which are of quiet dispositions, and apt to fatten. The Suffolk and Berkshires are highly recommended.

With regard to sheep, we have much room for improvement. Our sheep are too small and too lean for mutton, and too coarse for wool. We are rapidly improving, however, in this department. Sheep need better care in winter than they generally get; they should be kept warm and have a plenty of good water. As to poultry, farmers generally like those varieties best, which destroy the least grain, and eat the least corn. With regard to wintering stock, we should be careful and not to start on the cold journey with too many head. If a man thinks he can keep twenty head, let him start with but fifteen. These fifteen, well kept, will be worth more in the spring, than the twenty poorly kept, or pinched through. Young stock should be kept growing all winter, otherwise we lose a part of their keeping. Milch cows should always be kept in good order, hair soft, in fine spirits; so that as you go out with the pail to milk them, they will turn their bright eye towards you, and (as an old gentleman once told me) will step away from you, and turn round towards you, as polite as a French dancing master. With regard to our lands, we need to pay particular attention to the management of different soils; our wet soils need draining, but there is danger of over draining them. Our dry soils may need plaster, but this also may be overdone; judgment must be used in both cases to receive a benefit. There is but little danger, however, from the plentiful use of manure. In nine cases out of ten, farmers allow much of this valuable article to be wasted in the yards; and of course in proportion as this is lost, the farm is impoverished. The barn-yard, is indeed the farmer's bank, and, if attended to, with the same care that paper or stock banks are, will yield a far greater interest

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to the stockholders. Rag-money banks discount for sixty or ninety days, whereas the farmer's stock-yard bank, is ready to discount every morning. The interest, of course, is immense.

In New Jersey the farmers are in the habit of making what they call "compost heaps," as also is done in many parts of this State. Say, take some hollow piece of ground, or excavate one which will hold, perhaps, twenty-five loads, and draw a few loads of muck, or swamp mud, and throw in now and then a load or two from the barn yard, and then some leached ashes, plaster, or a little quick lime, as the case may be, and so on, until it is full. A farmer may at odd spells accomplish this in three or four weeks, and by this time it has become thoroughly pulverized, and ready to be spread on meadow, pasture or grain land. Suppose he does this for the months of May, June, July and August, four months, he will then add one hundred loads of valuable top-dressing to his farm annually, in addition to what he ordinarily does. In this way he enriches his farm rapidly, and with proper care every thing prospers around him.

A few words in regard to our fair and society. All must rejoice in the prosperity and success of our present fair. Let us have no heart-burnings or jealousies as a society, but unite heart and hand in this public enterprise for the general good. An agricultural society is a republican institution, a society calculated to bless and benefit every department of business. No person who understands things right will join this, or perhaps any other society, for the mere premiums he may get. Every man who prepares his crops or stock, or implements of husbandry for the fair, probably gets treble, or even fourfold more benefits in reality, than his expense. The man who looks at the society as it is, and its intention, cannot fail to see that he is sure of a benefit or premium, and if the judges award him a premium, that is so much extra. There are hudreds of persons in the county of Oswego who stand aloof from our Agricultural Society for want of an acquaintance with it. Its object is for their good, and as an officer of the society, and an old member of it, I would cordially invite them to unite with us. If the society is faulty, help

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us make it what it should be. The society is for the benefit of laboring men, and they have as much, and even more power in it than any other class of men. It is, verily, a republican institution.

As the mighty Schuylkill river lifts itself upon Fairmount's lofty summit, to bless and benefit Philadelphia's peaceful sons, so may this society elevate itself to bless both the present and future generations.

EXTRACT FROM THE ADDRESS OF REV. EDWARD LORD, BEFORE THE OSWEGO AGRICULTURAL SOCIETY, ON HORTICULTURE, SEPT., 1853.

We will now turn our attention to the social and moral influences horticulture exerts.

The influence of cultivating fruits and flowers is decidedly social and refining; it makes home pleasant, and draws the bonds of affection more closely around the members of the same family. It was announced to the children of Israel that they should occupy houses and possess vineyards, and eat the fruit thereof, when they should enter the promised land. This injunction must have been gratifying to them after their long encampment before the verdureless summits of Sinai, and while wandering over desert plains, with no green trees to cheer the sight, or blooming flowers to perfume the air. It was the design of the Almighty that Canaan should be the home of his chosen people; and, that they might abide there cheerfully, it was important to throw influences around them that would make their homes pleasant, and promote a love for the place chosen for them to dwell in. By building houses and planting vineyards, this end would in a great degree be secured. It is a law of our being that we become attached to those objects upon which we have bestowed labor, and over which we have expended care. We love the trees our own hands have planted, the vines we have cultivated and trailed over our doorways, and over the trellis our own hands have constructed; we love the cottage we have planned and erected, or which is hallowed by time-honored associations; and our attachment becomes very strong. The houses and vineyards upon the mountains of Israel were no inconsiderable influences in promoting a love of

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home, for which the Jewish nation was renowned; and the same influences now are vastly important, in promoting internal peace and strengthening the social affections. The trees, the flowers, and fruits around our dwellings are the centers of interest, and while cultivating them, and watching their growth, an insensible though strong influence is stealing over us. If the dwelling is tastefully constructed, and is surrounded with trees bearing fruits, and with flowering shrubs and perennials, filling every nook and corner, the members of the household become attached to the home of their comfort and their joy. To appreciate, somewhat, the influence of horticulture, it is only necessary to compare such a home with a neglected dwelling that stands like some towering rock in a verdureless field, where we can find no exhibitions of taste or care beyond the common necessities of life.

In preparing the outward adornments of the cottage, a part of the work is peculiarly adapted to the female members of the family. Their hands should trail the plants requiring the delicate touch; and their taste should be called into requisition in planning the garden, when beauty and tasteful arrangement are desired. It is an employment they need, and which repays by refining their natures, and in giving back the bloom to their cheeks. It prevents that unhappy influence that must follow an unreasonable and unnatural confinement to severe domestic duties. Let them breathe the morning air and the fragrance of the dew-sprinkled flowers, and a portion of their time be attired in garments, "all redolent with sunbeams and west winds," and they will cheerfully and thoroughly perform necessary duties; and Heaven's sweet influences, so important to mould and refine their natures, will not be lost.

It is universally admitted that circumstances of location and of climate affect the character, especially when in process of formation. The influence of economy and prevailing habits are impressed upon national character. Upon the individual the effect of the beautiful in nature is to refine the affections, and remove the natural roughness of character he may possess. In the nobleness of the Indian, we read his communion with nature in her wild solitudes; and in the kindness of the sailor, who makes the

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ocean his home, we trace the influence of scenes with which he is familiar. No man can cultivate a love for the flowers of the field, breathe their fragrance, and admire their beauty, without being the subject of that softening influence necessary in forming a perfect and symmetrical character. The refinement thus secured does not at all diminish his mental vigor and strength, but renders them more attractive, and is essential to their perfect development. The influence of a cultivated taste is seen in the formation of the English character. A peculiarity in the habits of the English, is a fondness for flowers that pervades all classes. In the summer season you will notice them with bouquets in their hands, or with roses in the button holes of their vests. The judges marching to the sessions of their courts, and the higher classes, enjoying the pleasures of social life, bear about their persons the beautiful productions of the green-house and of the garden. Vases of flowers are placed upon the center tables, upon the judge's desk, and also upon the tombs of departed friends, thus evincing a national fondness for them. To this cause is traceable much of that affability and refinement of manners for which the English are so celebrated. It also accounts in part for the good grace with which they yielded to the triumph of American ingenuity in the World's Industrial exhibition, occurring a few years ago, and also for that admirable feature of character, exhibited in respect for those who are their superiors.

It cannot be denied, that we, as a nation, need every influence adapted to refine our social natures, and remove that bluntness of character too often found in a comparatively new country. We possess strength and vigor, and we need delicacy of feeling and refinement to give symmetry and perfection to our characters. This result is promoted by communing with nature in her groupings and clusterings—by adorning our dwellings, and by surrounding them with a profusion of beauty, and learning to love and cherish everything that is beautiful in the works of the Creator.

An interesting train of thought is found in the *prophetic suggestions* of the several departments of horticulture, which point significantly to the future millennial state of the world. The language of prophecy unfolding the future is most graphic.—"The

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mountains and the hills shall break forth into singing, and all the trees of the field shall clap their hands. Instead of the thorn shall come up the fir tree, and instead of the brier shall come up the myrtle tree. The desert shall rejoice and blossom as the rose. It shall blossom abundantly, and rejoice even with joy and singing; and the glory of Lebanon shall be given unto it the excellency of Carmel and Sharon." The language thus employed prefigures the moral order and peace that will universally prevail, and there is no reason to be found why this prophecy will not be literally fulfilled—why external nature will not be changed so as to mirror forth the happy and peaceful condition of the world. In Eden thorns and thistles were unknown, and why should the trail of the serpent over the flowers of Paradise then be visible? Why should not the earth be like a garden, and the "desert bud and blossom as the rose."

However visionary the idea of a physical millennium may appear, it is nevertheless practical, requiring no miracle, but can be brought about by the ordinary process of labor. Many large farms in our own country are now in so high a state of cultivation, that they appear like extensive gardens. In the report of a committee on farms in Seneca county, to which I listened a few years ago, it was announced that on some of the farms visited, so thorough had been the cultivation that not a brier, thorn or foul weed could be found. Let population increase and the farms will become smaller, and tillage, as a consequence, will become more thorough, and not a foot of land will be neglected, and not a thistle or a noxious weed will be permitted to grow. Waste lands will be thoroughly drained, and hill sides will be terraced, bringing neglected and now useless lands into a state favorable to cultivation. It should be remembered that Christianity is hostile to indolence, and whenever in the ascendant, is accompanied by active industry and advancement in the arts. This has always been true, and with the advancement of any people in morals there has been progress in agriculture. The resources of the Old World have been sufficient for the transformation of all the inhabited territory. There has been sufficient labor expended to reclaim all the waste lands, and terrace the hill sides, but it has been bestowed upon unworthy objects, and

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in channels ruinous to the prosperity of any people. Strength has been expended largely in the gladiatorial and athletic games of antiquity, perpetuated in the tournament, and in other public spectacles in the days of chivalry. An incalculable amount of labor has been expended in rearing pyramids, and mausoleums, and in hewing out and transporting huge statues and obelisks to perpetuate folly rather than true greatness. The ruins of castles in Europe testify to an undue concentration of labor, and triumphal arches and monumental remains are proof of great waste, to satisfy ambitious tyrants, and to celebrate and make attractive heathen holidays. War has been exceedingly destructive to human strength, having directly and indirectly caused the destruction of about one-tenth of the human race. Those who have fallen upon the field were generally young men, and those in the strength of manhood, thus wasting nerves and sinews that make the arm strong and the body vigorous. Much of the labor not employed in the field was necessary in providing for the army, in gathering together food, and in constructing arms and equipments. Besides, the march of armies has been characterized by the destruction of orchards, vineyards, orange groves, of cities and dwellings and works of art. When we remember the vast armies that have poured forth from every province in the Old World, and that almost every plain in Europe has been a battlefield, we are not surprised that so much barrenness and poverty still exist. In the cultivation of the soil to provide for the army, the design has been merely to reap, not to improve the lands that were tilled, and, when unrequited toil has been employed, as has been the case in every age, the earth seems to recoil and grow barren. The true idea is, that the soil should be occupied by those desiring and loving a home, who will labor to make their lands productive, and their dwellings pleasant abodes; and had the energies of the human race been thus employed, the Old World would now have been a perfect garden. When labor shall no more be wasted in seeking pleasure, and in satisfying an evil ambition; when the principles of the Gospel prevail, overcoming indolence, and marking out the appropriate channels in which labor shall be expended, we may look for the literal fulfilment of prophecy.

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In confirmation of the view suggested, we notice many improvements in agricultural chemistry, in implements of husbandry, and also discoveries in every department of horticulture, which facilitate labor; and we are now reaping benefits in the increased beauty and fertility of our lands. These improvements will continue until future generations will look back upon our ignorance with surprise, equal to that we manifest as we look back to former generations.

We have evidence in the past that wonderful changes can be accomplished. Travellers inform us that the hills of Palestine were once terraced, and were highly cultivated, and that now the remains of former beauty are everywhere found, which are vestiges of former luxuriance. This accounts for the description of the sacred writer, calling it "a land flowing with milk and honey." History informs us of the fertility of Babylon, whose inhabitants were supplied with food, principally from the gardens in rear of their dwellings. The vineyards of Europe are represented to be exceedingly beautiful, as the terraces on which the vines are grown rise in regular order one above another—types or examples of what the whole face of nature, at no distant day, will present to the eye of the beholder.

As objections to the theory presented, we are pointed to rocky ledges and unsightly bolders, that mar the beauty of the landscape; but those rough places can be made to contribute to it, and become an additional feature of interest. The bolder can be grown over with the vine, and beauty can be made to bloom from the crevices of rocks. The Highlands and the craggy hill sides of the Hudson are selected as desirable country seats by our merchant princes, and are made exceedingly beautiful by the hand of the ingenious and nature-loving gardener. Rural architecture, taste in the construction of cottages, and a knowledge of the laws of taste in landscape gardening, have changed many a craggy wild into the beautiful and treasured abodes of our own citizens, which betoken a state of millennial beauty. The "Elm Wood Cottages," the "Vesper Cliffs," and the "Green Vales" will continue to multiply, until our entire country will be like a garden.

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It seems conclusive that "the mountains and hills will break forth into singing, and the trees of the field will clap their hands," that Lebanons, and Carmels, and Sharons, will every where be found, and external nature will change with the character of men. The earth groans under the curse of thorns and thistles and desert wastes; indeed, "the whole creation groaneth and travaileth together in pain until now, waiting to be delivered." How glorious and beautiful will the earth appear when this result is attained. Beauty will everywhere bloom. The dwellings, the happy homes of united families, will be embowered among trees and blooming plants. Fruits—golden, rich and melting—will ripen on every bough. Thorns and briers will be unknown, and the earth clothed in new robes of beauty, like Eden, the happy abode of our first parents, will mirror forth the peace and moral order that will prevail among men.

OTSEGO.

The annual fair of the Otsego County Agricultural Society was held at Cooperstown, on the 11th and 12th of October. The exhibition was not a very satisfactory one. The show of animals, and particularly of neat-stock, would not have apprised a stranger that our county relies for her prosperity, in a great degree, on "the cattle upon her thousand hills." There was, however, a large concourse of people, who seemed to have come together for the purpose of making merry, and who, if one might judge from the general hilarity, did not fail of their object; but if our farmers in attendance with their families in gala dress, had also brought along with them the best samples of their butter and cheese, the handsomest products of their wives' or daughters' handicraft, the finest specimens of their flocks and herds, that were left quietly grazing at home, we should have had an exhibition which would have given something like a just indication of our actual condition as regards wealth and refinement. Yet, some of the few cattle exhibited, were worthy of our excellent

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pasturage. The show of sheep was, perhaps, an average one as compared with former years, and that of swine indicated the increased attention which has been given to pork raising, during the past year.

A very considerable display of domestic manufactures, of products from the garden and orchard, and of mechanical implements, gave additional interest to the exhibition. There was also quite a show of poultry of the several varieties that have lately been introduced into the country.

On the second day of the fair, the plowing match came off in a spirited manner. There were seven competitors for the four premiums offered, and the work did, indicated that the importance of deep and thorough plowing is understood and appreciated by our farmers. The show of horses also took place on the second day, and was such as has not probably been surpassed in any previous year.

In the afternoon, the society listened to an address from Dr. E. P. Byram, of Cooperstown, who gave an interesting and excellent discourse.

December 14, 1854, the annual meeting of the society was held, when field crops and winter fruits were exhibited. Among the competitors for premiums on winter apples, William Davison exhibited thirty varieties, and C. A. Derbyshire twenty-seven, and most of these varieties seemed to have attained to full growth and perfection. The certificates presented with the samples of grain and root crops, showed a yield of 18 to 23½ bushels of spring wheat to the acre, 31 to 32 of barley, 48 to 62 of Indian corn, and 130 to 160 of potatoes. It is probable that these yields, particularly that of potatoes, were excelled by many other crops raised in the county, but not offered for premium.

The growing of wool in this county, has for some years been gradually giving place to the dairy, and pork-raising has been rather on the decline, until the high prices of last year gave it a little more life. But the department of husbandry on which our farmers rely more than any other, and on which they ought to rely still more than they do, is the dairy. Our hills and vallies,

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covered with rich verdure, and watered by innumerable rivulets and springs, are peculiarly fitted to the making of butter and cheese; and it is observable that those farmers who have turned their attention to this business, while they have been well remunerated for their time and labor, have continually improved instead of impoverishing their farms.

There has been for some years a constantly increasing attention paid in our county to the raising of hops. It is estimated that as many as 2,500 acres are planted to hops in this county, yielding, this season, something like 2,000,000 lbs., and bringing to the pockets of the growers nearly or quite $600,000.

The drought of the past summer, though severly felt in some parts of the county, seems not to have been as severe here as elsewhere, and the enhanced prices received have more than compensated for the lessened amount of our products. On the whole, the past season has been to the farmers of this county one of unparalleled prosperity.

The following is a summary from the treasurer's books:

Balance of last year in the treasury,.....	$96 94
Received from members, and admission into the tent, ..	229 56
Received from the State, ...	148 00
	$474 50

Premiums, ...	$343 50
Contingent expenses,.....	54 96
Balance in the treasury,.....	76 04
	$474 50

Answers to questions propounded in the circular of the Corresponding Secretary of the State Society, of Nov. 28, 1854.

1. The chief products of our county are those of the dairy, and hops.

2. The capital invested in both is increased this year; but the product, owing to the drouth, does not, perhaps, exceed that of last year.

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3. There are about 380,000 acres of improved land in this county. It is impossible to say with accuracy, but perhaps one-half of the improved land is devoted to the dairy. The amount of butter and cheese produced not known, (the census for 1850 states it to be 4,547,544 lbs.,) but the quality is thought to be good. Of hops, there are now something like 2,500 acres, yielding, this year, a large crop, of good quality.

4. The yield of other crops has been below the average of other years. Can give no more particulars than appear in the above report.

5. The number of acres under tillage is slightly increased. Very little woodland in this county is now "cleared," except as the wood and timber are needed for use.

6. There is but little change in the number of animal stock. Cattle have somewhat increased, sheep have decreased, hogs have considerably increased. Native breeds are most common. Devons and grade Devons are quite numerous; but Durhams and grade Durhams, I think, are more approved than any other.

7. There is but little scientific attention to farm cultivation.

8. There has been little attention to drainage. Some tile draining has been done in the immediate vicinity of Cooperstown, the past season, with what advantage, is not yet known.

9. There has been a marked increase in the value of farms. In the hop districts this increase has amounted to fifty per cent. Perhaps it may safely be said that throughout the county the increase has been from fifteen to twenty per cent

10. Our products are mainly bought up by resident speculators, and go to New-York, through Fort Plain, and by other routes. It is impossible to say what per cent of their value the expenses amount to. A. H. CLARK, *President.*

Officers, 1855.—Joseph W. Ball, President; Benjamin Pierce, 1st Vice-President; L. W. Rathbone, 2d Vice-President; George Clark, 3d Vice-President; J. B. Wood, Secretary; George P. Keese, Treasurer. Executive Committee—John A. Rathbone,

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Noel Harrington, William B. Van Woert, John S. Brown, A. H. Clark, Wm. Davison, Z. Martin, David Bundy, George Field, Chas. McLean, Wm. I. Compton, Wm. Shipman, David Taft, John H. Carswell, Seth T. Winslow, O. N. Shipman, Thos. T. Higby, and Philip H. Potter.

FROM J. W. BALL, ESQ., SCHUYLER'S LAKE.

B. P. JOHNSON, Esq.

Sir,—In answer to your circular, handed me some time since, I submit the following:

1st. Wheat is not cultivated in this county to much extent. The county of Otsego twenty years ago, was second to but one county in the State for the growing of fine wool, and it was then a lucrative and money making business—lands were cheap, and the products of sheep high—but, in the course of events, this state of things has changed, the cause is too well known to be mentioned here; now this county is in substance, a dairy and hop growing county. In 1851–'52, by the census report, the State of New-York produced two and a half million pounds of hops, or over two-thirds of the whole amount raised in the United States; now taking the same data to calculate from, it is reasonable to suppose, that the counties of Otsego and Madison produced three-fifths of this amount, and putting the two counties equal, which I think is nearly a correct estimate, then the county of Otsego has produced the last year, nearly eight hundred thousand pounds of hops, the average price will range not far from twenty-five cents per pound this year, on account of a heavy export demand, which will yield to the farmers of Otsego, the sum of one hundred and seventy-six thousand dollars; and the amount received for the products of the dairy will amount to about the same sum, making three hundred and fifty two thousand dollars received in the county for these two items alone. But we will return to the question of wheat growing; you will see by the foregoing, that ours is a grazing county, and perhaps there are few counties in the State which are better calculated and adapted to this purpose, being on the head waters of the Delaware and Susquehanna rivers, we have a salubrious, healthy atmosphere, and delicious water in

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abundance. The two last seasons have been extremely dry, and therefore unfavorable for our crops of cereal grain, but notwithstanding this drawback, the interest and zeal taken by the farmers of the county in the better cultivating of their lands, as a general thing, they get much heavier yields from what little they do plow, so the yield per acre may be safely set down for the county at thirteen bushels. Five years ago, when I had the honor of submitting to you our county report, you will find by looking at the State Transactions of that year, it is there put down as eleven bushels per acre.

The past summer has been the dryest, and so given in to be by the oldest inhabitants, we have ever experienced, and still not a single instance has come to my knowledge, but that they have raised better crops of wheat this year than for several of the past years—the reason is a more thorough state of cultivation; the time was, when farmers would plow their lands as long as they would produce anything, and then let them go with perhaps a little timothy and chaff from their mangers, and some extra farmers would put on a top dressing of manure; now a man is considered a poor farmer, unless he understands the utility of rotation in crops, and then a lay of clover, and a dressing of gypsum or some other fertilizer. Our lake ridges, and river and creek bottoms, are well adapted and receive great benefit by the application of one and a half bushels of plaster to the acre, either in the spring or fall, I prefer the fall for meadows, and spring for pastures. There are not many good farmers in this county that raise less than twenty bushels to the acre, if they should happen to get less, they would be pretty sure not to say any thing about their crop of wheat at all.

Four years this summer, I had a fine piece of land that I had sowed corn on the previous year, I told my man to plow and sow it to wheat (spring crop), and he did so; I asked him after he came in, how much seed he put on (he said, five bushels); I told him we should not get a crop, he had sowed it too thick, but he said, this is what we do in England. I thought time proves all things; it came on finely, and my man soon began boasting of his way of doing work. The result was, I never raised so good a

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crop in my life; I had the ground surveyed, it measured one and three-fifths of an acre, and the yield was sixty-three bushels, for which I took the first premium in our county society. Now this is only one item, or one case, I could mention many more, but hasten to the next question.

2d. Indian Corn.—This crop is thought much of for fattening the pork that the farmer consumes in his own family. There is but very little of this crop raised in the county to feed for market meats, either in pork or beef, yet some of our lands are well adapted to its growth. On the river flats south of Otsego lake, and down the course of the Susquehanna, it is no uncommon thing for them to produce from 70 to 100 bushels and upwards. I suppose the average per acre of this crop would not fall short of 36 bushels.

3d. Oats.—This crop is extensively raised in this county, for the reason that the demand is always good and prices generally high—seldom less than three shillings, and the most of the time four shillings per bushel. The average per acre of this crop will come up as high as 30 bushels to the acre in this county. We think it a poor crop unless we get 40 to the acre in this section of the county. We esteem it an excellent crop. The straw when dried and put up in good order is very valuable for fodder; it is fed when cut to working horses, and is considered by some to be preferable to hay, and so it is to poor hay.

4th. Barley is considerably raised in some sections of the county, mostly in the northern towns, being nearest to canal navigation. It is raised mostly for malting for the distillery or brewery, but is not considered a very sure crop, but generally bears a good price, so that a light crop generally pays well, being from five to eight shillings per bushel. For the last five years it has averaged 75 cents per bushel. The average of this crop will not probably go higher than 27 bushels per acre.

5th. Rye.—This is not raised to any extent in the county, indeed not enough to form any correct opinion what an average crop might be; it grows well when put in, but is not considered

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a profitable crop in our county at all, being considered too nearly allied to the whiskey distillery. We prefer the barley and the hops put together for a common beverage.

6th. Buckwheat is raised considerable in this county, being a good crop for late tillage in wet places, and when weeds and thistles get in the lands. Plowing in June and sowing to buckwheat is the best way to subdue noxious plants and weeds. The usual price is 50 cents per bushel. The average yield is probably less than 25 bushels per acre, although I think it would go over 20 to the acre. It is a very uncertain crop, and very difficult to form any correct data upon.

7th. Hay.—This crop in this county is of some note; we strive to bring our meadow lands up to the highest state of cultivation, and lay them down smooth and seed them well in clover and timothy, and much depends how this is done on our future success for a crop of hay, and finally it extends to our future crops after plowing again. The crop of hay in this section has been materially affected this year by the two last summers being so dry, and then the last winter was the worst I have ever known. We had an open winter, with continual rains and freezing. Our grounds lay naked all winter, and the ground was frozen to a great depth, so that all these things have been bad for our meadow lands. After all we have had a better crop than we could hardly anticipate, and the average has perhaps been one three-eighths tons, and perhaps over. Hay is worth now, in our village, from $10 to $17 per ton.

8th. Potatoes —The crop of potatoes this year has been very good, where they have been planted on the right kind of ground. Those that turned green sward in the spring on upland have had rather a slim crop, on account of the drouth, but those that planted on old ground, and particularly if inclined to be a little wet, have had quite good crops. On the whole our county has raised full an average crop, and it has I think come up to 140 bushels to the acre. I judge by the crops which I have seen in my own town and vicinity, and the acquaintance I have with the county,

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9. Peas and beans are not much cultivated in the county—not enough for me to form any opinion upon; our lands are as capable of growing good crops of peas and beans as any lands in the State; we raise, of peas, just in the vicinity of Schuyler's Lake (I am located on the west side of this beautiful lake), very good crops, for fattening our pork, and often get forty bushels to the acre; I have always sown from two to four acres, and think them preferable to corn, they are obtained with so much less labor, and then they come off early enough to put in fall crops; I practice sowing early, and clearing the ground, put in wheat, and generally succeed in getting good crops. We do not cultivate the bean crop enough to venture any standard of an average per acre.

10. Flax is not grown in this county to any extent since my remembrance; it was in the early settlement of the county when the motto was, "make all you want to wear," and wheels, reels, and looms occupied the places that are now occupied by melodeons and pianos; but what a difference in the hands that used the former and those that play on the latter—hardy, rosy, and healthy the former—pale and sickly (not to be wondered at, so loaded with gold rings and trash) the latter; however, there has of late been a price bid for flax, and there is a prospect of its coming more in use.

11. Fruit.—This county is becoming noted for its fine fruit, as you can testify to, by the exhibition of Mr. Henry Freeman's fruit at your last two annual meetings; at the last, I really think the fruit exhibited by this gentleman was as good, if not superior, to any on exhibition. Mr. Freeman has a fine nursery on the west side of this lake, is getting a good variety of fruit, and is a gentleman of fine taste; those who know him appreciate his benevolence in a taste of his fruit, from the vine and the cherry, and the richest pear I think I ever tasted.

12. What has been the diminution of crops by drouth? In the first place the hay crop has been injured the worst of any, and the diminution in this crop has been, in consequence, three-eighths less than usual; the oat crop has been affected in the

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same way, and I should think to the same degree; corn is also shortened by the drouth; but in general, the farmers of the county have great reason to thank the Author of all Good for his kindness in filling of their granaries.

13. The fly has not injured the wheat crop in this county to any extent this year.

14. Drainage has not been practiced enough in this county to offer an opinion.

15 and 16. The two last questions proposed I will answer in connexion. What is the state of farming generally in your county, and is it improving? Now, the question is this: Have the farmers of Otsego good farms, are they well laid out and well fenced, are their dwellings neat and tasty, and their out-buildings in good style and in order? We say, is this generally so? and is it improving? We answer in the affirmative; and can say, from personal knowledge, that it is improving.

PUTNAM.

CARMEL, *Dec.* 20, 1854.

B. P. JOHNSON, ESQ.

DEAR SIR,—The fourth annual meeting of the Putnam County Agricultural Society took place yesterday at Lake Mahopac. There was a fair display of dressed meats, grain, grass seed, &c. There was some very fine timothy seed, raised by Franklin Hyatt, of Putnam valley. The attendance of members was good, and there seems to be an increasing interest in the affairs of our Society.

Officers for 1855:—President, Thomas B. Arden, Philipstown. Vice-Pesidents, L. D. Cliff, Carmel; James E. Kelley, South East; Coleman Townsend, Kent; H. A. Pelton, Philipstown; E. Hyatt, Putnam Valley, and J. M. Towner, Patterson. Secretary, G. Mortimer Belden, Carmel. Treasurer, Saxton Smith, Putnam Valley.

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Our President delivered a very able address, which, when printed, I shall take much pleasure in forwarding to you.

Our treasury is in a very flourishing condition, there being a balance on hand of nearly $500.

Your obedient servant,

G. MORTIMER BELDEN, *Secretary.*

Irrigation.—The following useful suggestions on this subject, from Leonard D. Clift, Esq., Carmel, Putnam county, are deserving of attention:

"I am satisfied that not one farmer in a thousand throughout the United States knows but very little, if anything, of the advantages of irrigation to any extent. It is now some few years since that it occurred to me that I could do it to advantage upon my farm; a stream of water and about thirty acres of land being convenient, and suitable for that purpose. It is sufficient to say, that I lost no time in making the experiment, and the consequence is, that the yield of my crop—a hay crop—from these lands has been more than doubled, and much of it upon the gravel soil four times told more than ever before. I have learned much I think by experience, how and when to apply the water, and thereby increased the quantity of the grasses, if not improved them to a considerable extent. The irrigated lands improve more and more every year without any expense but the water, and from my irrigating pond I get about 200 loads of wash, or sediment, annually, to put upon my uplands; this, with a peat swamp and my barn manures, answers for me instead of guano, &c. My doctrine and practice is to husband and apply the manures upon my own farm, as most to be depended upon."

REPORT BY T. B. ARDEN, PRESIDENT.

In conformity with the statute for the promotion of agriculture, I herewith submit a statement of the transactions and condition of our county society.

The fourth annual fair was held as heretofore, I am sorry to say, at Carmel; my regrets however, are not on account of any falling

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off in either the enterprise or liberality of the farmers in the eastern townships, but on account of the necessity of bringing the society's exhibitions near to the firesides of many of our citizens, who have neither the public or private facilities of reaching our eastern border, and who at the same time, have been large contributors to its treasury, besides their rights in the apportionment from the State. I am fully of the opinion, that the society's exhibitions should at first be carried into each township in succession, and after that become located at the most eligible position for all concerned.

Our exhibition was held on the 26th and 27th of September, earlier than heretofore, on account of embracing a more general variety of fruits and flowers. Notwithstanding our farmers had gone through the most trying season for a brief period, the grounds were well filled with the products of the soil, both from the mineral and vegetable kingdom.

The society was addressed on the grounds, on the second day of the exhibition, by the Hon. B. P. Johnson, Secretary of State Society. He was a welcome visitor in our ranks. His remarks were listened to with marked attention, he spoke as a farmer to his kindred laborer, and left us with a desire that we might hear more from his accumulated experience. The society passed him a vote of thanks, and requested a copy for publication.

Our annual meeting was held at Lake Mahopac, where we had a small show of grain and dressed meats, but the weather was not favorable for the occasion.

Our finances are in a healthy condition, they stand as follows:

Receipts.

Balance on hand, per last report, ...	$459 94
Cash received from membership, ...	122 00
Cash received from sale of tickets, &c., ...	134 00
State Treasurer, ...	38 00
	$754 28

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Expenditures.

Cash paid for premiums,	$99 50	
plate,	36 37	
books,	29 50	
Expenses of fair,	29 23	
Contingent expenses,	13 50	
For printing,	84 50	
		292 60
Balance in hands of treasurer,		$461 53

All of which is respectfully submitted.

THOS. B. ARDEN,
President.

STATEMENT OF CROPS.

B. P. JOHNSON, Esq.:

Sir—Your circular, bearing date Oct. 23, 1854, calling for information respecting the agricultural condition of Putnam county, and the effect of drouth on her usual product, has remained unanswered, purely from a desire to return you something worthy of the name of a statistical report on the matter in question. But my endeavors have not been entirely successful, having received reports from Coleman Townsend, John M. Towner, and H. A. Pelton, only; but with the information and facts they have so ably and cheerfully rendered, joined to my own limited experience, I submit the following statement on our agricultural condition:

Our wheat crop, which is not very extensive the best of seasons, suffered to a limited extent from the fly, in our eastern townships, and an average yield under favorable circumstances, which is fifteen bushels per acre, was in consequence of the drouth and fly, reduced to five.

The corn crop suffered very much, many farmers cutting it up and feeding it green to dairy cows. In ordinary seasons our average yield per acre is forty bushels, but twenty-eight was the average last year.

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Oats which were sown early did very well, but the crop generally throughout the county, averaged only twenty-six bushels to the acre.

Barley is a crop little known to the farmers of Putnam, but I think they make a mistake in not introducing it in the rotation, as I have seen it on my farm not only produce well, but grass seed sown with it took remarkably well.

Rye is decidedly a popular grain with us, as we find it most generally does well, and does not impoverish our farms. It is used both in the household and farm establishment to a great extent. As yet no insect has been sent us from earth or heaven to demand it as his share of the spoils, and the straw is always in good request, both on and off the farm. This year the yield was about fifteen bushels. This is very near the average yield in good seasons.

Buckwheat may be said to have been an entire failure, in consequence of the drouth, many farmers not reaping the seed sown; but the average yield was nine bushels, which is very far short of the usual product of our rough acres, being about twenty-five bushels favorable seasons.

Hay may be said to have been a fair crop, returning about one and a half tons, which is a fair average in our county.

Potatoes did nothing on the western border of our county, but the eastern townships received about seventy-five bushels to the acre, and that, of late years, is an average of what we have been able to do with that crop, with one or two exceptions, and they were on drained land.

Peas and beans are not a field crop with our farmers, though a few individuals have tried and done well with them.

Flax is scarcely known as an agricultural product, for which I am unable to assign any sufficient reason.

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Fruit is only found to a very limited extent, but we are gradually becoming inoculated with the taste, and that is all that is necessary for the genus homo, where the good things of this life are in question.

Respecting the diminution of crops by drouth, it would be difficult to fix an average, as the western part lost all its summer crops, and the eastern met with but little damage; but I think I am within bounds when I say the yield of the county was one-third less than the favorable seasons. Farmers having drained meadow lands have experienced but little prejudicial effects from the drouth.

In regard to the state of farming in my county, I think I can safely say that it is materially improved, and our farmers are evidently becoming convinced of the necessity of making some extra exertion to keep pace with the improved agriculture of the day. In my rides across the county to our county town, for we are most unfortunately situated in that respect, it has been a source of considerable gratification to observe the effort everywhere being made to bring under cultivation swamp lands, and to put in good fence farms whose boundaries have heretofore been hedge rows and stumps turned on end. The agricultural society, I am convinced, is doing its work. Something in the educational line is now all that is wanting; and I trust the time is not far distant when our farmers will reap the reward of their patient abiding, and the "masterly inactivity" of our legislators be overtaken by the precise era in which their wisdom may be sown broadcast, and return to them and us the one thing needful.

THOS. B. ARDEN, *President.*

QUEENS.

In presenting the thirteenth annual report from the Queens County Agricultural Society, the undersigned will endeavor to answer the questions proposed in the circular of the State Society, dated October 23, 1854.

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When the affairs of an agricultural society are prosperous, it is a pleasing duty to submit the annual report, and more especially so when the calamity of a severe drouth has been met by our farmers with a spirit of fortitude, and by an improved system, which has materially lessened its effects.

The spring of 1854 will be long remembered in the county of Queens, as the most rainy for many years. Oats could not be sown in some parts before May, and corn was not finished planting until June, unusually late for this county, between latitude 41 and 42 N.

The drouth commenced about the early part of July, when oats were short, and corn fairly growing.

The following meteorological table will give the quantity of rain during the months of July, August, and part of September:

		Inches.	
July	14,	2.15	during the night.
	24,	0.36	afternoon.
August	1,	0.50	during the night.
	4,	0.03	heavy dew.
	25,	0.73	light thunder shower.
Sept.	2,	0 03	heavy dew.
	6,	0.04	slight shower.
	10,	2.30	during the night.
	14,	0.85	"

The average height of the thermometer for eight weeks, taken at noon, was 85°, while for several days at a time it ranged from 98° to 100° between 2 and 3 o'clock P. M., accompanied with a drying wind. The heat was so oppressive during harvest, that labor was suspended for two to three hours on many days.

The crop of hay was good, except on old mowing grounds. White wheat below the average, especially what is here called White Mediterranean, which was nearly destroyed by the wheat

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midge and rust; the Brown Mediterranean, a fair average, and quality good. The usual plan in this county is, to manure the land in the spring heavily, and plant potatoes; after the potatoes are taken off, plow up, and spread about 100 bushels of leached ashes per acre, which is harrowed in, and the wheat sown. Mediterranean sown on land thus worked is seldom attacked by rust or wheat midge. Oats short and poorly filled—about half a crop; rye below the average; buckwheat, except in a few locations, a complete failure; corn light, and many pieces cut up by August 20; potatoes, a two-third crop.

The market gardeners in the western part of the county state that early fall turnips were almost a failure; beets and carrots, small and fibrous; beans blossomed freely, but the blossoms fell off without bearing pods.

From the nurserymen and fruit raisers we learn that trees have made less growth than usual, the leaves smaller; the crop of apples, a failure; pears poor and small, and the skin on all fruits much thicker than usual; many of the trees lost their leaves in August, and since the rains in September, have come again in leaf, and some in blossom. On the north side of the county the locust (*Robina pseud-acacia*) appeared as though a fire fire had passed over them.

Land that had been drained or subsoiled has suffered comparatively little, and good crops of hay and corn have been gathered from them, showing the benefits of subsoiling and draining.

The foregoing were the agricultural prospects of the county when the meeting was called to decide on the time and place for holding the annual exhibition of our county society. From appearances, a failure was anticipated, and instead of two days, as last year, one was selected.

The thirteenth annual exhibition of the society was held in the village of Jamaica, on the 28th of September, on the spacious

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grounds of the president, Hon. John A. King. It was a pleasing feature, that notwithstanding the late drouth, and great losses sustained by farmers, they turned out to celebrate the anniversary with as much cheerfulness as though the season had been one of the most prosperous. The day was fine, and the exhibition surpassed the highest expectation of its friends. The village was thronged with visitors, especially ladies, who had come to do honor to the great festival day of the county.

ADDRESS OF HON. CALEB LYON, OF LYONSDALE, BEFORE THE QUEENS COUNTY AGRICULTURAL SOCIETY, SEPT. 28, 1854.

Mr. President and Gentlemen:

It is a proud day in my life to assist you in an humble way to do honor to the plow and to the distaff, and with a handful of facts from the granaries of the past, I approach with much diffidence the consideration of my subject. It will not be my province on this interesting re-union, to bring forward any fine spun theory, or to undertake the task of an instructor in a profession, in which, from this day's exposition, you have shown yourselves successful adepts, both in its theory and its practice: yet, if I can but impress one mind with its importance as the source of all permanent national prosperity, then my theme is accomplished.

Man's first occupation was as a fisherman and a shepherd. The first was the embryo of the vast marines that have since discovered worlds, and now plow every deep; and the second, while tending the flocks on the plains of Chaldea at night, were the observers of the stars and planets, and from their crude investigations has since sprung the noble science of astronomy. The gradually increasing numbers and wants of man, turned his attention from the primitive nomadic life of the early days of time, to the steadier and surer employments of the cultivation of the soil

The Hebrews, the Chinese, and the Persians, are the first nations on record who encouraged and asserted the worth of agri-

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culture as the great element of stability in the rise and progress of Empires. And many of the kings, priests, prophets and warriors of Israel were chosen by the Lord from the tillers of the soil. The brightest earthly promise of Judah, was a land flowing with milk and honey during the darkest days of her bondage. With the Chinese, it was closely allied to their religion, and one of the services of royalty itself; and it may be, that Providence, who has lengthened out their life as a nation beyond the traditions of man, granted its length of days for their veneration of his highest employment! As regards the Persians, it was a maxim of the Zendevesta of Zoroaster, "that he who sows with the greatest diligence, is more acceptable to the Gods than the offer of ten thousand prayers.

During the best days of the greatness of Egyptian, Grecian and Roman dominion, agriculture was both praised and respected; and Numa, the successor of Romulus, when he first declined the Roman crown, assured the ambassadors that "his delight was not in assemblies of men, collected together for the purpose of conquest, but rather in the useful occupation of cultivating the earth, the common mother of mankind." The love of peaceful pursuits, early inculcated by this wisest of kings, made a lasting impression upon the future of that imperial nation; and in after years we find the iron minded Regulus, the great general, asked a recall from service in Africa, of the Senate, for the purpose of attending to the duties of his farm.

When contemplating this profession, the inimitable Plutarch justly exclaims: "No occupation implants so speedy and an effectual love of peace, as a country life, where without diminishing the courage and bravery necessary to defend property, the temptations to injustice and avarice are removed." At the desk or bar, and the tedious confinement of the store, with the complete absorption of every faculty—and he could feel these, he would say—"give me back again the verdant fields, the blue sky, the bright sunshine, the lowing kine, the golden harvest, and the quiet homestead."

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God's nobility is only stamped on those who act their part in life's great drama with nobleness; it is the disposition, and not the employment that degrades or elevates. The past confirms us in asserting that those who have held the plow, whenever their country required, have ever been the first to respond to her call, and most gallantly wielded the sword. As never to be forgotten instances, I would mention the intrepid Stark, the undaunted Putnam, the sagacious Greene, the heroic Herkimer, and the invincible Marion. Those are instances of patriotism, such as have seldom been recorded in the annals of the world. Their deeds and their lives are imitations of the heroes of Plutarch, and like the character of the immortal Washington, they will remain models for all future posterity, and an honor to the soil that bore them, to the farthest cycle of uncounted time.

There is one subject to which I would call your attention particularly. It is to that of a garden, which frequently displays in theory and practice the daguerreotype of good husbandry. With little care the fruits of many lands may be acclimated and reared in perfection. The plum, pear, peach, apple, cherry, strawberry, raspberry and vine would there find a place, and in flavor the luxuries of the tropics cannot exceed them. The more delicate kinds of grapes, by planting in tubs, can be carefully removed from the trellis and housed in the winter. This is a very common practice in the vineyards of the Upper Rhine, with the choicest varieties.

And then one word for the farmer's idle friends, the flowers. They are the way-side apostles of beauty and innocence, the silent teachers of gentlest thoughts to childhood, the creatures of tenderest emotions, and they are the alphabet containing the rudiments of the glorious and the good. Their very inutility leads us to generous thought. They speak to the heart of man the language of spirituality—that he liveth not by bread alone; in fact they seem to rouse his aspirations for something higher than mere sensual existence. Often amid crowded cities have I seen little plots of violets and sweet lavender sit in the windows of the poor sewing girl or lonesome apprentice, and partook part of the joy they gave them as souvenirs of their far off homes. They fill

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sad hearts with happy thoughts, they keep open the well-spring of affection, they cherish the freshness of feeling. Shakspeare's Falstaff when dying, after wit, wine, war and the world had ceased to charm, Dame Quickly tells us, in his last moments, true to the better instincts of his nature, played with the flowers and babbled of green fields.

If man was the inventor of the plow, woman has still the equal honor of the distaff. If man tilled the earth for food, woman spun its raw material for clothing. In its young days was the world largely indebted to her ingenuity; and he who prized a virtuous woman far above rubies, has thus described her duties and her reward: "She seeketh wool and flax, and worketh willingly with her hands; she layeth her hands to the spindle, and her hands hold the distaff. She maketh herself coverings of tapestry, her clothing is silk and purple. She openeth her mouth with wisdom, and on her tongue is the law of kindness. Many daughters have done virtuously, but thou excellest them all, Her children arise up and call her blessed." The Trojan palladium exhibited the goddess Minerva as the patroness of this first-born of arts, with distaff in hand, and owl at her feet, conclusive evidence that then, as now, industry and knowledge walketh hand in hand.

During the mystic age, the Scandinavian Scald sang of life as a thread spun by Time, and often broken by Fate. In the historic age this labor was impictured within the tombs of Egypt—on the terra cotta of the mounds of Peru—on the sculptures of the ruined temples of the Aztecs, and, according to ethnology, the sun has ever shone upon its inestimable blessings.

There are recorded many curious instances of female industry, many of which may be worthy of recounting. The mother of Confucius was so benevolent that she sewed garments for the poor, which, after her death, cured those of disease who wore them; she also invented the rare art of embroidering fabrics, that both sides are identical in order and in pattern. The shawls and scarfs of Souchou are now considered the choicest of the Celestial Empire. Fatima, the favorite wife of Mohammed, wrought for

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him a sash of snowy silk, with his name in silver, which being lost was found upon the grass, changed to green, and from that hour it became the color sacred to the Prophet. The embroidery was turned to diamonds, from which miracle a pious Arabian chronicler infers that the faithful will bask in the eternal glory of Allah's smile in heaven, as the diamond's brightness is imperishable upon earth.

Troy's Helen, according to the best authority, was well acquainted with both spinning and knitting, and it is to be hoped that her labor was better repaid than that of the hopeless task of sad Penelope. Herodotus informs us that Darius, one of the kings of Persia, fell passionately in love with a spinning girl of Sardis, who, as she walked, gracefully pursued her work.

Lucretia, the chaste Roman matron, whose beauty and virtues proved to her an iliad of woes, not only provided her household with clothing, but taught her slaves the art of weaving with her own hands. At a monastery in Seville is still preserved a cushion for prayer, wrought in plush and gold, by Isabella the Catholic; and the state bed-chamber at Holy Rood palace contains tapestry hangings, the handiwork of Mary, Queen of Scotts. During her long and tedious imprisonment, it was her delight to work samplers in colors of the Lord's prayer, the product of which, when sold, she gave to the poor.

The skill of the manufacturers of Cashmere, whose shawls have become world-renowned, does not lie in the peculiar fineness of the wool, but in the marvellous art with which it is dyed, woven and wrought; and wonderful as has been their imitation by machinery, they still remain inimitable. Yet no less extraordinary than the Cashmere shawls are the products of the Parsee maidens of Delhi, whose veils are composed of such delicate texture, such gossamer fineness, that they rival the web of the spider; they are much sought in the harems of the East, as the threads, laces,

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honiton, brussels and valenciennes are here, frequently bringing a hundred times their weight in gold. In the north of Africa we find the wives of the Bedouins, Mamelukes, and other desert tribes, producing those hooded, seamless garments, much prized by travellers, and of the greatest durability, from the camel's hair, by the simplest process. The ponchos of Peruvian manufacture possess great brilliancy and indelibility of color, and are doubtless the same materials (the wool of the guanacho and vicuna,) as described in the days of its conquest by Pizarro.

The water-holding and water-shedding swapes or blankets of the Navajoes, Apaches, and Camanches, in firmness and closeness are the perfection of even twisting and hand weaving; their coloring is vivid and lasting, their patterns, especially their borders, possessing infinite variety, and are often beautiful and unique. Such was probably the showy drapery in which were clad the Court of Montezuma, and which occupies in its description a dozen pages in the narrative of good Bernal Diaz. Such were the vestments prized more than gold, by the Aztecs of Mexico and the Imans of Peru, and which excited such astonishment, when first exhibited in Spain.

The Island of Manilla has been for years the seat of a manufacture, peculiar its own. I refer to the pena cloths, the products of the leaves of the pine apple. After rotting and drying and combing, there is a fine fleecy residuum, which, on being spun and wove, produces a fabric between linen and silk in texture, with a fine lustre and possessing great value; but small quantities are exported, and its production is chiefly confined to the natives. The most distinguished decoration known, and rarely dispensed by the Popes of Rome, is the pallium, which is wrought by hand in the most primitive manner, from the fleece of consecrated lambs, by the nuns of the convent of St. Agnes, just outside the gates of the Eternal City.

Our own country has offered many illustrious examples of industry. When La Fayette visited Mary, the mother of Washing-

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ton, in Fredericksburgh, she was industriously engaged in weeding her garden. The wives of the Revolution plied many a shuttle, to supply the cloth for the cartridges, and the music of their spinning wheels was far sweeter to the ears of the brave men of those days, than the ventriloquial vocalization of Jenny Lind to ours. The distaff is fast losing caste as a type of female industry. Its reign in our country is nearly over. Asia, Africa, Europe, North and South America, have owned its power as a civilizer of mankind. Steam, with its Briarean arms, has wrought the change. The nankeens of the Yant See Kee, are thrown aside for the cottons of Manchester. The furs of Siberia, for the woolens of Glasgow, and even the natives of the South Sea Islands, no longer beat out their tappa from the barks of trees, but, turning their attention to the cultivation of sea stores, exchange them for cotton cloth at a cheaper rate. Yet, with all these changes, woman has risen into a higher scale of intellectual estimation, the successful complicity of machinery has lessened her labors. She can proudly compare the past with the present.

Let her remember the fidelity of Semiramis, the perseverance of Jezebel, and the heroism of Zenobia, the beauty of Aspasia, the fascination of Cleopatra, the grace of Phyrne, the artlessness of Cenci, the brilliancy of Borgia, the diplomacy of the Medici, the loyalty of Corday, and the genius of De Stael. Without virtue and religion, these individual qualities are barren possessions, where flourish the buds of sin, and bloom the flowers of passion, and ripen the seeds of vice. That the humble constancy of Ruth, the tenderness of the daughter of Pharaoh, the devoted meekness of St. Catherine, the piety of Helena, the personal courage of Boadicea, the prayer-felt bravery of Joan of Arc, the exalted resignation of Jane Grey, the self-sacrifice of Pocahontas, the practical zeal of Hannah Moore, the earnest missionary labors of Ann H. Judson, and the fervent philanthropy of Elizabeth Fry, fill the contemplative spirit with most pleasant meditations, and one feels that angels gleaned the field, wherever their graceful footsteps trod.

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Let her remember, that power has never been an element of woman's happiness; its possession only brings the cross cares, its loss the ashes of bitterness, its realization fully demonstrates its emptiness!

The death-bed of Queen Elizabeth, whose successful reign secured England's safety at home and respect abroad; whose zeal for religion earned for her the enviable title of Defender of the Faith, was a scene of unexampled agony and unmitigated misery; a malady preyed upon her, which no sympathy could alleviate, and for which medicine had no healing balm. Let her remember that fame's amaranths are dewed with tears, that the tide of song flows oftenest from the heart smitten with sorest affliction; that the crushed flower exhales the sweetest perfume; that the wounded tree only exudes the precious balsam; that Sappho, the most gifted of all the women of ancient days, whose fragrant verse, for a thousand years, has warmed the hearts of men with admiration, driven to despair by hopeless love, slept the sleep of voluntary death, beneath the blue waves of the Ægean.

Let her remember she was created the companion of man, the sharer of his cares, his toils, his joys, and his sorrows, and as such it is in her power alone to render his home attractive. Such is a far higher destiny than to become famous, for griefs told in rhyme, or infamous as the light of a Harem, or a cynosure of a Court. Happier the women of our own free and happy land, who unite in their own persons a knowledge of the industry practised by the high-born dames of chivalry, with a thorough knowledge of belles lettres; thus are they fitted for the varied duties of life, as accomplished daughters, intelligent wives, and, woman's highest and holiest sphere, devoted mothers. For it is a mother's love that instils those principles of truth and virtue, that bloom the brightest for immortality, and the memory of that love that we carry with us, more precious than the relic of some saint, which has power to return the prodigal, and lead the erring back to heaven.

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At the close of the address, the thanks of the society were tendered to Mr. Lyon, and the members adjourned to the society's dinner. The meeting at the dinner table was a peculiarly pleasant one—made up of the clergy, farmers, lawyers, editors, and ladies of Long Island. Besides the good eating, there was good speaking, Mr. King, the President, in one of his happiest moods, spoke of the orator of the day, and toasted him as a "farmer and independent man." Mr. Lyon, in response, delighted his listeners with some excellent remarks. His allusion to how little Congress was doing for the farmers, when compared with the army or navy, was powerful and caustic, showing "that while the last Congress voted away nearly seventy millions of the people's money, the farmers received about nine hundred and seventy-six dollars, for the purchase of seeds. The President summed up the whole, in his own forcible and effective manner, and adjourned the meeting to witness the plowing match.

Nothing occurred to interrupt the festivities of the day, every body seemed well pleased, and the increasing interest which appears to be manifested in regard to our agricultural society, is a matter of great satisfaction.

Cattle.—The show of thorough breeds were the best ever exhibited by the society; Andrew H. Mickle, of Flushing, received the first premium. Those shown by E. A. Lawrence, of Flushing, from the stock of John C. Jackson, Esq., of Astoria, were particularly deserving notice, and received first premiums in their class. The show of grade stock and dairy cows was large; Hon. Isaac E. Haviland, of Roslyn, exhibited fifteen very fine dairy cows. Thirty-four premiums were awarded to cattle.

Horses.—The exhibition of horses was no less gratifying than in former years, notwithstanding that the show was doubtless reduced by the horse fair, held on the National race course on the same day. Thos. Williams, jr., North Hempstead, received first premium for his stud "Telegraph;" Peter Hulst, Newtown, for brood mare; Hon. John A. King, Jamaica, for matched horses

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and J. A. Chapman, Manhasset, for single horses. S. R. Bowne, Flushing, exhibited a fine young stud. Nineteen premiums were awarded, including six silver cups.

Sheep and Swine.—Nine premiums were awarded in this class, principally to E. A. Lawrence, Flushing, and J. C. Van Rensselaer, Jamaica. Mr. Lawrence exhibited a fat hog weighing over 800 pounds.

Poultry.—The show of poultry was large, and of fine quality. R. C. McCormick, jr., Jamaica, Allan Macdonald, Flushing, and J. E. Haviland, Roslyn, received first premiums.

Butter, &c.—Twenty-four entries were made, of superior quality. "Ashton's Liverpool salt" is still continued to be recommended as the staple article to be used in butter.

Vegetables.—This department took us all by surprise, and we promise not to croak so soon again in old Queens; "more room," "more room for vegetables," was the cry, until one hundred and ninety-one feet of tables were filled, and there were some of the finest we ever saw. Richard Parnell, gardener to D. F. Manice, Oatlands, exhibited 58 varieties, and received the silver cup; Alexander Johnston, Flushing, and J. J. Tompkins, Newtown, also made a good display. Forty premiums were given for vegetables.

Fruits.—The show of fruits was inferior to former years. R. Parnell, gardener to D. F. Manice, Oatlands, exhibited 141 specimens, and received the silver cup. The display of hot-house grapes exceeded former years; Messrs. Parsons & Co., Flushing, exhibited the following varieties, and received first premium: Reine de Nice, Sweetwater, Black Constantia, Chasselas de Paris, Black Frontignan, Zinfindal, Banker, Syrian, Tokay, Black Hamburg, Constantia of Zante, Cannon Hall Muscat, Purple Chasselas, Muscat of Alexandria, and White Constantia.

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Grains.—The show of grains was inferior to former years; very fine corn was exhibited by Capt. Suydam, Jamaica, and Z. Story, Hempstead. The samples of corn exhibited were considered by the committee good for any season.

Plowing.—Nine entries were made for the plowing match; Solomon Stansbury, with J. C. Van Rensselaer, Jamaica, did the best work, and received the first premium.

Domestic manufactures.—The ladies exhibited many handsome and useful specimens of industry, especially a large screen, beautifully worked, by Miss Cornelia King, Jamaica, which tempted us very much to break the tenth commandment; Miss Ely and Miss Story also exhibited beautiful work.

There was a large display of agricultural implements; among them, "Long Island against the State," an improved mower and reaper, by Weekes; also, a good show of wagons and carriages.

The following are the receipts and expenditures of the society for the present year:

Total receipts, including balance on hand,.....	$1,169 87
Cash from Comptroller, ...	91 00
	$1,260 87
Premiums and incidental expenses,.....	1,004 26
Balance on hand, ...	$256 61

The Queens County Agricultural Society has been in operation thirteen years; for several years the progress was slow. What are now its results? We can enter the door yards of many of our farmers, where formerly the thistle and burdock claimed and was allowed a prescriptive right, and post and rail its only fence; now, a neat white-painted picket has taken its place, flower borders adorn the path, running vines and roses festoon the door, choice evergreens and a closely-mowed grass plot occupy the place where the family horse used to browse. Ask the wife or

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daughter, under whose care the garden is kept, how they manage the succession of flowers throughout the season? and they will refer you to Buist's Directory, or the Ladies' Flower Garden Companion, received as a premium at some former exhibition. It affords great pleasure occasionally to visit our members and spend the evening. The host talks advisedly. Is it on points of stock, or diseases of animals, he can refer you to Youatt and Martin, Allen or Dodd; if he wants to improve his house or build a barn, he has Downing or Rural Architecture to consult with. If we stop and take supper, he shows his premium cups and increasing library of premium books; his wife or daughters their premium butter knives; in the evening the choicest fruits are brought on the table, instead of the everlasting hickory nut, as in olden time. From whence come these luscious fruit in so short a time? Downing's Fruits and Trees, or Thomas, has instructed him to graft good stocks with choice sorts; his yards and buildings are neat, his cattle look happy, and his horses sleek; "there's a place for every thing, and everything is in its place;" he has his boys studying "Agricultural Chemistry," for, says our host, "I am desirous of giving them a better education than I possess;" he begins to find that a little learning is not so dangerous a thing as he formerly thought; ten years ago he would as soon have thought of their learning Hebrew as "Agricultural Chemistry." A greater interest is manifested in regard to schools. In our villages new and commodious school houses have been erected, the most competent teachers engaged, and a thorough revision of the old system is apparent in most of the districts.

We may also mention the beneficial results of the improved system of agriculture brought forward. During the month of August we were invited by one of our members to view his growing corn, and take note of *his* method. The land had been *subsoiled*, and although the drouth was severe, the leaves were a fine dark green, and the silk luxuriant, seemingly scarce to suffer from the great heat. In the adjoining lot, only separated by a post and

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rail-fence, the stalk was drying up, the ears small and poorly filled. A spade was procured, a hole dug; about eight inches deep we came to a hard pan, and with considerable labor broke through the pan; below the earth was dry as ashes. The subsoiled lot of our friend was then tried, the spade went down into a mellow soil, and at two spades depth it was moist and mellow; no wonder his corn looked flourishing. We have examined several lots of corn; the land being subsoiled all stood the drouth well, and since husking we have been informed the yield was nearly as good as last year. We also, early in July, visited two pieces of grass; No. 1, about nine acres, the soil naturally good, with a loamy subsoil; one half had been *subsoiled.* The timothy on this part was over four feet high, and made more than three tons of good hay to the acre, not a weed among it, the other half producing not more than half the crop; all put down at the same time. Lot No. 2, in another part of the town, with a gravelly subsoil, about twelve acres in the lot; four acres had been *subsoiled*, four acres plowed seven inches deep, and four acres lightly plowed. The subsoiled part produced over ten tons of hay, as admitted by the *purchaser* of the grass, and for which he paid $65 as it stood; the next best four acres about a ton and a half per acre, and the part poorly plowed very little more than daisies and weeds.

We mention these facts as evidence that an improved system of agriculture is being appreciated, and that our Society has produced beneficial results.

A communication was read from the Hon. John A. King, requesting that he might not be considered a candidate for re-election as President, and asking to be relieved from its active duties. The communication was accepted.

The following resolutions were then unanimously adopted:

Resolved, That the thanks of the Society be presented to the Hon. John A. King, for his efficient services as President during the last seven years.

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Resolved, That the Board of Managers be convened early in the month of June, to decide on the time and place for holding the next annual exhibition.

Resolved, That this meeting recommend that the next annual exhibition be held on two days, the first to receive and arrange articles, &c.

Resolved, That Rev. Wm. H. Moore, Wm. L. Laing, and Samuel B. Mersereau, be a committee to audit the treasurer's accounts the ensuing year.

The following are the officers of the Society for 1855:

President—Hon. Isaac E. Haviland. Vice-Presidents—Samuel M. Titus, Oysterbay; Silvanus S. Riker, Newtown; Edward A. Lawrence, Flushing; Wm. L. Laing, Hempstead; Henry T. Hewlett, North Hempstead; Stephen L. Spader, Jamaica. Managers—Stephen Robbins, Oysterbay; Joseph J. Tompkins, Newtown; George Bradish, Flushing; Tredwell Hewlett, Hempstead; James B. Smith, North Hempstead; B. Hendrickson, Jamaica. Corresponding Secretary and Treasurer—John Harold, Hempstead. Recording Secretary—Robert Willets, Flushing.

Very respectfully,

JOHN HAROLD, *Cor. Sec'y.*

RENSSELAER.

The 13th annual cattle show and fair of the Rensselaer County Agricultural Society was held at the village of Lansingburgh, on the 19th, 20th, and 21st days of September, 1854.

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The display of the products of the soil, owing to the long continued hot and dry weather, was not equal to many former exhibitions of the society. The display of animals, horses, cattle, sheep, swine, and fowls, was a tolerable one. The contributions from the mechanic shops, the manufactory of domestic industry, and of taste and art were highly creditable.

An excellent address was delivered on the last day of the fair by J. Stanton Gould, of Columbia county.

The receipts of the fair fell short of the expenses several hundred dollars.

The annual meeting, on the 23d of January, 1855, was well attended, and was animated by the best spirit. The retiring president, Gen. J. J. Viele, delivered a very eloquent and pertinent address, for which he received the merited thanks of the society.

Officers for 1855.—President, Amos Briggs, of Scaghticoke; Vice-Presidents, Geo. Vail, Troy; Jno. J. Viele, Troy; Hugh Rankin, Troy; Henry Warren, Troy; H. W. Knickerbacker, Lansingburgh; Directors, Benj. Starbuck, Troy; Joseph Hastings, Brunswick; William Newcomb, Pittstown; J. E. Stearns, Schodack; Frederick B. Leonard, Lansingburgh; Isaac Tallmadge, Scaghticoke; Jacob Mirrick, Poestenkill; E. M. Van Alstyne, North Greenbush; John Tilley, Grafton; R. J. Knowlson, Sand Lake; Joseph Haswell, Hoosic; Seth Hastings, Nassau; Joshua S. Lewis, Petersburgh; Wm. Jones, Stephentown; John Whitford, Berlin; Frederick R. Rockafeller, of Clinton; and Jonas Whitney, of Greenbush; Treasurer, Abram Van Tuyl, Troy; Secretary, William Hagen, Troy.

At the meeting held in February, it was resolved to have an auction for the sale of horses and cattle, and also implements, and a committee was appointed to frame rules for said sale. I issued queries as you desired for information touching the condition of farming in our county; also as to the success of the leading crops, for the year just closed, but failed to get any amount of information worth presenting

W. HAGEN, *Secretary.*

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ADDRESS OF J. J. VIELIE, PRESIDENT OF RENSSELAER COUNTY AGRICULTURAL SOCIETY.

Gentlemen of the society—In the cycle of time another year has rolled around, and brought with it another anniversary of our association. Organized as we are, to promote the interests of human industry, to add dignity to human labor, and to secure it the highest rewards; we have every reason to congratulate ourselves on the results of the past, and to look forward with cheering hopes to the future. Thirteen years since, a few patriotic citizens of this county, stimulated by the laudable desire to elevate and improve the great business of agriculture in our midst, convened and organized themselves into a society for that purpose. Without funds, except what was raised by voluntary contribution, the society distributed in premiums, at their first annual fair, the sum of about $400. This sum was increased in each successive year, until the premium list of the last year amounted to $2,000. It is estimated that an aggregate of premiums has been paid out in this time, amounting to near $20,000. During the first few years of our existence as a society, the annual fairs were moved from place to place, where the best accommodations could be had, and temporary buildings were annually erected for the accommodation of the exhibition.

This was found to be not only expensive, but exhibitors complained much of damage and insecurity of their articles exhibited. It was then adjudged expedient by the executive committee to purchase a lease of suitable grounds, and erect thereon such buildings as were necessary for the purpose designed. These were occupied some four or five years, when they were destroyed by fire. The loss to the society was estimated at about $2,000. The lease having but few years to run, and the society not being able to procure its renewal, were under the necessity of locating elsewhere; and, after mature consideration, the executive committee fixed upon Lansingburgh as the most eligible location all

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things considered, for the general interest of the association. An opportunity offered, and the executive committee deemed it expedient to purchase a lot, containing about seven acres of land, quite well adapted for the purposes of our show, with large and expensive buildings erected thereon, for $5,000—a sum very much below the original cost of the property, and considerably less, it was deemed, than its actual value. At the commencement of the last year there was a balance due upon this purchase of $2,600, and a general debt for repairs, premiums paid out, and expenses of the society of near $400, making an aggregate of indebtedness of about $3,000. The executive committee deemed it essential to the usefulness of our society, if not absolutely necessary to its permanent existence, that the debt incurred for the show ground and buildings should be at once extinguished. For this purpose an assessment was made upon the city of Troy, and the several towns in the county, which was designed to be proportionate to their population, wealth, and their proximity to the place designated for the annual fairs.

This call was nobly responded to by the city of Troy, and most of the towns of the county; but I regret to be obliged to say, that some four or five of the eastern and southeastern towns have contributed little or nothing towards this great object. This, I feel assured, is not owing to a want of intelligence, or to a proper appreciation of the object among their citizens, but rather a want of that effort which was necessary to arouse their patriotism and public spirit into active co-operation. Other towns, however, exceeded the call, to an extent nearly sufficient to supply the deficiency; and it is gratifying to announce that our subscription list equals the amount of that debt. We have, however, by our extended and increased premium list, added to the general debt of the society the sum of about $400, making the aggregate of indebtedness above our means about $800. By carefully husbanding our finances in future, it is to be hoped that this debt may, in course of two or three years, be entirely extinguished.

May we not again appeal to the generosity of those towns which have done little or nothing, to come forward and aid in

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the reduction of this debt. May we not hope that they will place themselves upon a footing with those who have so generously responded to this call, and relieve the society from this embarrassment?

Then, indeed, will our society be enabled to assert its claim to a position among the independent and permanent institutions of our country. Properly and discreetly managed, it would be difficult to calculate the extent of its influence, and its power for future usefulness. It would stand as a proud index of our enterprise. It would be pointed to by the future historian of our county, as one of the great agents in the work of improvement; as a landmark in the great march of progression; as the noble result of the enlightened action of its patriotic founders.

The history of the world shows, from its early ages down to the present time, that man has been a student, slowly but steadily making advances in the knowledge of the laws which govern and control matter. According to the chronology which has been generally received as correct, he has been six thousand years in arriving to the position he now occupies. Without questioning the correctness of this chronology, which by many of the present day is believed to be far short of the age of the earth or of the existence of man as an inhabitant thereof, it is sufficient to show that his advances, in the earlier period of his existence, must have been slow indeed. But every point gained, every truth discovered, enabled succeeding generations by availing themselves of them, to advance more rapidly than its predecessors. These advances have been in most cases, but mere improvements on the ideas and practices of the past, and have in their time yielded to still farther improvements upon them. At last it has come to be discovered that nothing for any great length of time is stationary—nothing is fixed—nothing established—nothing perfect. Improvement—development—is written upon everything human. This law governs in all the manifold relations of life. Change is gradually working an alteration in all systems, forms and doctrines of religion. It appears in the advanced and still advancing science of government. It is shown in all the social relations of

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enlightened and refined humanity. It is observed in the slow, but nevertheless sure and gradual advances of barbarous nations. It is seen in the improved systems of education, of prison discipline, in our improved laws, constitutions and governments. Circumscribed as human knowledge now is, ignorant and erring as we now are, the generations of the past knew less, and erred more. While we are unable to observe any very great advance in a single generation or lifetime; yet when we compare the present with the centuries gone by, with the dim ages of antiquity, how great is the contrast, how pleasing is the change. In claiming for the present its vast superiority over the past, I speak not of localities where light has early dawned, nor of individuals who in remote ages have stood out beacon lights on the shores of time, guides to groping, blind humanity in her struggles for knowledge and truth; but I speak of mankind in the aggregate, of humanity in the concrete.

In science, availing ourselves of the labors of those who have gone before us, new discoveries are constantly being added to the stock of human knowledge. Errors are eradicated, and new truths—not new in themselves, but newly discovered—are continually reached. In the theory of government each age improves upon its predecessors. With the advancement of science, of intelligence, civilization and refinement, we have new requirements, and the mind of the world promptly responds to the call. In the arts, what branch of them has arrived at a stand? The improvement of yesterday is superceded by that of to-day, and the advancement of to-day will be obsolete on the morrow. With our forefathers the common road was an improvement on the Indian trail, the turnpike was an improvement on the common highway. The turnpike has been made to yield to the McAdam road, and the McAdam road in its turn, yields to the iron rail. For the transmission of intelligence, express couriers, were superceded by the regularly established mails, and the mails are now measurably supplanted, if not by the announcements of thunder, yet by the swift messages of lightning.

In the productive arts, how great have been the changes of practice, and how different are the theories of culture! What

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was considered a servile employment, a mere mechanical business, which might be conducted without education or brains, has arisen to the dignity of an enlightened profession.

Among the sons of farmers, the dullest have generally been selected for the plow, while those apparently more promising have been assigned to the counter, or educated for the professions. This practice has also prevailed to some extent in towns. Oh! fatal error! It has at last been discovered that it requires a varied intelligence, a sound judgment, and much science to make a respectable farmer, while ordinary capacity can sell calico, draw molasses, shuffle bank notes, or discharge the ordinary duties of either of the professions. It is within the memory perhaps of some now living, when manures were considered useless, and were suffered to decompose, to evaporate, and waste upon the dung-hill, or were as a nuisance, drawn upon the rivers, and thus borne to the ocean, instead of being properly applied to the soil. The influence of the moon had more control over the action of men, and was supposed to have more effect upon vegetation and production, than the application of stimulants, or the correct principles of science. But how changed! He who would now reject a theory, because found in a book, or an agricultural periodical; who would rely on vague tradition and erroneous practice, would be considered a fit subject for a straight jacket, or a lunatic asylum. A farmer at this day who rejects all science, who denies her utility and power, and who resists her claim to almost every improvement, is as far behind the advancement of his art, and the development of his race, as the long-eared donkey is in rear of the noble blood horse. The introduction of fine-wooled sheep was resisted by many of the old farmers, with a pertinacity that was truly astonishing. If, like the frogs and flies of Egypt, they had been sent as a punishment upon man, they could hardly have excited more alarm. They encountered ridicule and wrath. Guns were loaded, balls were laid up, and vengeance sworn upon the first Merino that should set foot upon the farm. And yet fine wool has become the staple of New England, and of Eastern New-York; adding scores of millions annually to our wealth. The town of Hoosic, in our own county, now boasts of more Merino

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and Saxon sheep, and annually turns off more fine wool, than any town in our State.

Science discovers the true laws of nature, and success depends upon the correct application of these laws. Without them, the mower cannot properly affix his scythe to the stick, nor the chopper his helve to the axe. There is a philosophy in the most trifling operation. The hoe and the rake, those simplest of farm implements, have arrived at their present degree of perfection by the application of her laws. The reaper and the thrasher are alike its triumphs, and the plow, that crowning glory and emblem of the farmer, has been brought to its present highly improved state, by the aid of philosophy and scientific experiment. The history of the plow is the history of civilization. Its improvement has kept pace with the advances of mankind in knowledge. It is frequently referred to, in the sacred book, and historians inform us, that it was one of the rude implements used in Syria and Egypt, in the primitive days of our fathers. It consisted of the crooked branch of a tree, the upper and larger part answering for the beam, and the lower and heavier part cut down to move the earth; to this was sometimes attached a stone, and sometimes a flat piece of iron, for a point. This was at first drawn by men, but in later days by a team of cows or heifers, and not uncommonly by an ass and a heifer, yoked together. Something like this was used in Rome in the days of the Cæsars. Virgil, her rural poet, tells us, that

> "Young Elms with early force, in copses bow,
> Fit for the figure of the crooked plow."

It is said that very much the same kind of plow is used to this day by the Moors and Arabs of North Africa. Travelers inform us that in many parts of Europe and Asia, the plow now in use is but a slight improvement on the oriental plan.

In parts of Russia and Poland, and even in Italy, the plow in use at this day is but a shade better than that used by the Moors and Arabs on the plains of North Africa, and that used by the boor of Finland and Bothnia is but little advanced in mechanical structure beyond the one used by the "men of Thebes and Memphis."

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Such were the plows used when agriculture was in its infancy, and such are now the implements used in all places where the laboring people are kept in ignorance, where the mind is enslaved and where it is not taught to direct the hand, and where civil and religious despotism prevails.

The application of the same laws which have advanced the mechanic arts, and have improved so vastly the implements of husbandry, apply with equal force and advantage to the culture of the soil and the breeding and raising of domestic animals. How important to the farmer that the nature and elements of soils should be understood, that their component parts be properly balanced by supplying only what may be found deficient. To produce in the greatest quantity and perfection certain grains and vegetables, the elements which enter into their composition should be found in proper proportion in the soil, and if not there found should be supplied. This can never be determined without applying scientific tests. In the breeding and raising of domestic animals, the laws of physiology, if properly practiced upon, may change and materially improve their form, properties, character and disposition. The success of the breeder depends in a great measure upon the application of these principles.

Nor is it alone in the production of vegetables, and grains, and animals, that the farm claims a high consideration, it is the constant growing of a race of men who supply the varied wants of our government and country. The hot bed growth of cities is illy adapted to develop physical or mental strength. Our large cities are as much dependent upon the country—upon the farm and the workshop—for their reliable business men as they are for their bread. Cast your eye over the "Young America" of cities, and with few exceptions you will find them drones in the great human hive. They live in a state of inglorious ease, without mind enough to excite to hope, to stimulate to laudable ambition, or energy sufficent to apply themselves to any of the pursuits of honest industry. If there is a being on earth who walks erect, and who has mind enough to have desires, that more than any other deserves our commisseration, it is that person who is with-

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out employment, and who is either too genteel or too indolent to engage in active business. He is a sort of gangrene upon the body politic, and his loss would contribute essentially to its general health. In connection with this subject allow me to say, that I like very much the idea that has obtained in some parts, of endeavoring to improve the human physique. While we are doing much to improve the breeds of domestic animals, why should we not do something to encourage the physical improvement of the human race. That it can be done by a proper attention to the laws of physiology there can be no doubt. That in some localities the race is degenerating, is equally clear. Shall the brute creation absorb our attention to the exclusion of the human? I submit this subject for the candid consideration of the Society.

In view of the foregoing reflections, how can it be said, that the farmer's vocation is one of mere drudgery and toil? His art comprises all arts. His trade embraces all trades. His is a noble and dignified profession. In it is found ample scope and exercise for all his powers, physical and mental.

My beau ideal of a happy, good, and great man, is a thoroughly educated and accomplished farmer. He lives true to nature—he is constantly in her midst. With ceaseless vigilance he observes her beautiful developments and ever changing forms—her infinite variety—and her never failing uniformity. He watches the clouds and the seasons, he surveys the earth, and contemplates the glory of the heavens. He breathes the air, fresh from heaven, eats the uncorrupted food of healthful industry, and drinks the water pure from its fountain. Thus living *with* nature and *in* nature, he is led to contemplate the great source of all her manifestations. Like Moses he sees, and, like Enoch of old, he may be said literally, "to walk with God."

The farmer has many advantages for mental culture. He has or should have hours every day, devoted to reading and study. If, owing to a defect in his education, he has no taste for this, he should endeavor to cultivate it. It would be folly indeed, to exhaust his energies in increasing the fertility and productions of his soil, and leave his mind, his immortal mind, an uncultivated

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barren, a desert waste; and, besides, if the former were with him, the paramount object, he would more likely be successful, in proportion as he improved the latter. In constant communion with nature, how vastly would his happiness be promoted, by a knowledge of the Natural Sciences. While nourishing vegetation, while engaged in beautifying the earth, in bringing forth the fruit and flower, and perfecting the harvest, how much pleasure he would derive from a knowledge of the laws of vegetable physiology. In his daily walk, how oft is his attention arrested by some rare plant, some new and beautiful flower. He would then be able to invoke to his aid the science of botany, and learn its name, its habits, and its uses. Almost constantly delving in the earth, what infinite satisfaction would he derive from an acquaintance with geology. As he follows the plow, and opens the bosom of the bountiful soil, he should be able to read lessons of divine wisdom, written upon its teeming furrows. As the sower scatters his quickening seed and sees the diminutive grains rise from earth, in forms of matchless beauty, first gay with flowers and then rich with fruit, filling his storehouse and his granary with the bread which is to enrich, to nourish and support; he should be led to inquire how this apparent miracle is effected. Of necessity called upon to observe the movements of the clouds, and frequently to cast his eyes over the firmament, how grateful to him would be the philosophy of air and light, of wind and water, of rain and drouth. How sublimely elevating would be a knowledge of Astronomy—of the harmonious movements of the heavenly bodies, and the eternal laws which govern the solar system. All these are matters to be learned and studied, as bearing directly upon the enjoyment of the farmer, and furnishing for the most part knowledge directly bearing upon the practice of husbandry, and the advancement of the science of agriculture. This general condition of the agricultural mind is to be hoped for in the future, but in this day and generation hardly to be expected. In hastening the time, we all have a duty to perform. There is no such thing to be tolerated as retrogression or standing still. Conservatism in agriculture, as in the Church and in the State may put on the brake and hold back, but the great law of destiny will control and bear us onward. We cannot be contented or happy, without

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joining in the march. If we are not at the head, leading off, or in the center, forming the body of the column, we will form an unenviable appendage and be dragling along in the rear.

As a means of advancing the agricultural community, we should have schools, where the sons of farmers can be educated for the business they are designed to follow, where the sciences peculiarly applicable to their calling shall be mainly taught, and where the agricultural mind may be expanded, enlarged and liberalized. 'Tis true we have academies and colleges, and good ones, but 'tis equally true that they are calculated to unfit rather than to qualify for the practical business of life. Give us schools for the sons of farmers and mechanics, where the head and the hand shall be taught together, where labor shall be honored, and where practical men shall be graduated—fitted for the field and the shop. I have frequently heretofore adverted to this topic; it is to me a subject of the very highest moment, and whenever an opportunity offers, I cannot refrain from renewing it. When farmers themselves (and I say it with due deference) shall become a little more enlightened, and their representatives will reflect the views of their constituency, then, and not until then, shall we have what is so much desired, and what is so essential to the improvement of our practice and the elevation of our calling, namely, well organized and liberally endowed agricultural schools.

Do not understand me as repudiating all or any of that knowledge that is acquired by practice. On the contrary, I hold that mere theory is almost useless. Many, if not most of the truths discovered in agriculture and the arts, are the result of long practice, and numerous trials and experiments. This was once indeed the only way in which mankind advanced. They discovered that certain practices produced certain results; of the philosophy lying at the bottom they knew nothing; the rationale—the causes which produced the effects—they did not comprehend. What has been in this way attained is by no means to be despised. Knowledge, in whatever manner it may be obtained, is to be properly appreciated. Many persons acquire a practical education in this way, far more valuable than some that are certified by the diplomas of colleges and universities. But while we avail ourselves of this

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knowledge, so dearly bought, let us not reject the advantages which papers, and books, and schools afford. What the farmer needs most to know is the principle that governs every operation, the philosophy that underlays and controls them; his farm is a mighty laboratory, and every operation is an experiment. While these are going on he should be able to trace with accuracy effects to their causes, to understand how plants are nourished and fed, what they feed on, and what will best promote their health and growth. He should be competent to determine the use and value of manures, the kind and quality best adapted to his peculiar soil; whether lime or gypsum, or vegetable manure, is most required. This can be ascertained much easier and far cheaper by a chemical analysis of the soil than by a series of mere practical experiments, which require years for their consummation. The science of entomology, or the nature and habits of insects, is a great desideratum for the agricultural community; they are among the greatest enemies the farmer encounters; in the protection of his crops, his fruits, his vegetables and his flowers, it would afford him immense aid. The damage done the past year in the State of New-York by the wheat fly is almost incredible. By the census of 1850 the quantity of wheat grown in this State was 13,121,498 bushels; this amount must have been much increased had it not been for the fly. Statistical reports, received by the Secretary of the State Agricultural Society, show that the diminution of the crop this year, in consequence of the fly, is from 30 to 40 per cent; estimated at 33⅓ per cent, and the loss would be 4,379,499 bushels, which, at $2.15 per bushel, (the average price) would make a dead loss to the farmers of this State of $9,403,012.85. What an enormous sum! The injury that is annually sustained from the potato rot is incalculable. The man who could discover a preventive for these evils would be hailed as a public benefactor, coming with an almost holy mission to relieve afflicted and erring man from what, to the ancients, would have been considered a visitation and curse of God.

The great incentive to effort, with the majority of mankind, is pecuniary gain. If the higher, nobler, holier motives fail, 'tis well perhaps that the lower considerations should produce the

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desired result. Do farmers desire wealth? Then let them adopt the true principles of culture. Nature will not deceive. Her laws are uniform and certain. Comply with her requisition, and the product will be greatly increased, and by increasing the product, the value of the soil will be correspondingly enhanced.

As illustrative of the advantages of good tillage, Collumella relates a story: De re Rustica, L. IV. C. 3. "Graeciemes, in his book concerning vines, relates that he had often heard his father tell of a certain Paridius, who had two daughters, and a farm planted with vines. Of his farm, he gave one-third to the man who wedded his eldest daughter, but by increased attention to cultivation, he received as much produce as before, from the two-thirds which he reserved to himself. Afterwards, on the marriage of his second daughter, he gave away the half of the remaining land, and in a short time he found by still greater improvements in culture, that his income was in no respect diminished. What concludes he from this, but that the third part of the farm was better cultivated than the whole used to be?" Like Paridius, many farmers cultivate more land than they cultivate well, and like him, if they would give more attention, and improve their system, they might bestow more liberally upon their married daughters, and in no wise reduce their income.

The success and improvement of agriculture, depend mainly upon the education, the mind of those who pursue it, and almost all hope of progress must rest upon the science (in the most extended sense of the term), which is brought to bear upon it. One of the principal pioneers of improved husbandry in the United States, was Jared Elliot, of Connecticut. He was an enlightened clergyman, whose writings may be read, even at this day, with interest and profit. The Rev. Samuel Deane, of Maine, was the author of the New England Farmer's Dictionary, a highly valuable book, published some fifty years since. John Lowell, who contributed as much, if not more than any man of his day, to the promotion of agriculture, was an accomplished lawyer, and a man of science and taste. The Rev. Samuel Coleman, who was one of New England's most enlightened divines, was indefatigable in his labors in the cause of improvement. His "Agricultural Survey

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of Massachusetts," and his "European Agriculture," will be perused for ages with great profit and pleasure.

Our own lamented Buel, and Gaylord, and Downing, need but be mentioned, to awaken a sense of gratitude for their valuable services, and call forth emotions of profound respect for their memories. If we cross the Atlantic, there was Tull, the author of "Improved Husbandry"—and Young, the eminent agriculturist, who aroused so great a zeal and diffused so much information among his countrymen—and Sir John Sinclair, a great benefactor to English agriculture: all men of great learning and science. Von Thaer, on the Continent, highly distinguished for his agricultural skill and science, was said to have been bred to a learned profession.

Were it necessary to call up still more illustrious names to give character and dignity to our profession, we might go, "Far back in the ages, when the plow with wreaths was crowned." Poetry has lent her charms, and eloquence has exerted her power, to give the "first and best employment of man," that consideration to which it is so eminently entitled. When Rome was distracted by commotions within, and assailed by hostile bands from without, when the army commanded by the consul, was besieged, and dared not meet the foe, when all was confusion and dismay, and destruction seemed to threaten the city itself, Lucius Quintus Cincinnatus, was appointed dictator by the unanimous voice of the people.

The only hope of the Roman Empire, was found cultivating a small farm upon the banks of the Tiber. He was literally taken from the plow, an humble tiller of the soil, who dwelt in a rude cottage. Having wiped the dust and perspiration from his brow, he was conveyed to Rome, elected dictator, and placed at the head of the Roman Empire. Having met the enemy, at the close of the sixteenth day, he gave up his sword and resigned his command, although elected for six months; choosing rather to abide in his humble cottage, and cultivate his farm, than control the destinies of the Roman people. The name of Cincinnatus will never die. While proud and noble deeds shall command our admiration, while simplicity and virtue are respected on earth, his character will stand out in bold relief, emblazoned in letters

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"that can be seen and read of all men." In modern days, Europe and America have produced many great names, who by their labors to improve, have adorned the annals of agriculture, and made themselves shining lights of the world.

Our own immortal Washington, when he had achieved his country's independence, sheathed his sword, and resigned the power with which he had been invested, into the people's hands, who gave it. Having organized the government, like Cincinnatus, he retired to the rural shades of his own Mount Vernon, there to devote the remainder of his glorious life to the peaceful and quiet pursuits of agriculture. The names of Cincinnatus and Washington, will go down hand in hand to the remotest ages! They will stand out from the galaxy of heroes and warriors which dazzle and adorn the pages of history, as not only great in the field, and mighty in war, but as friends of humanity, the lovers of justice, and the patrons of the arts of peace.

In conclusion, for I feel that I have already occupied too much of your time, allow me to say, that this subject addresses itself to every interest, to every class, and every individual in community. The success of the farmer is the prosperity of all. The peasant and the prince are alike concerned. It gives bread to the poor, and fills the coffers of the rich. To the merchant it makes a direct appeal. It freights the barks of commerce; it gives employment, at profitable and successful rates, in the purchase and exchange of commodities. To the professional man, it gives good customers and good pay. To the mechanic and laborer, it is a subject of great moment, as whatever lessens the cost of production, and increases the amount produced, reduces the expense to the consumer.

"Nor ye who live
In luxury and ease, in pomp and pride,
Think these, last themes, unworthy of your ear;
Such themes as these, the rural Maro sung
To wide imperial Rome, in the full height
Of elegance and taste, by Greece refined.
In ancient times the sacred plow employ'd,
The kings and awful fathers of mankind;
And some with whom compared, your insect tribes
Are but the beings of a summer day,
Have held the scale of empire, ruled the storm
Of mighty war; then, with unwearied hand,
Disdaining little delicacies, seized
The plow, and greatly independent liv'd."

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RICHMOND

STATE OF CROPS, FURNISHED BY F. L. OSMSTEAD, SECRETARY OF AGRICULTURAL SOCIETY.

Average per acre of crops: Wheat, 18 bushels; Indian corn, 30 bushels; hay, 1½ tons; fruit, nearly a failure.

Crops have been diminished by drouth: Corn, one-fifth; turnips, beets, carrots, and all late forage crops, one-half; the wheat crop has been injured by the wheat midge, say one-fourth.

There is no perceptible difference as to drained and undrained lands, as regards the effect of the drouth.

The farming in this county is injured by land speculation.

No exhibition held during the year.

ROCKLAND.

The eleventh annual fair of the Rockland County Agricultural Society was held at the New City, on the 28th and 29th days of September, and both days being fine, was attended by nearly one-fifth of the entire population of the county; an evidence sufficiently striking to prove the healthy condition of the society.

Although our fruit crop has been entirely cut off, and the drouth very much affected our gardens, there was, nevertheless, a respectable exhibition of vegetables, far exceeding the expectation of any. It appeared to be the general impression, that owing to the drouth, there would be very little of the products of the field or garden exhibited. And hence, to fill up the tables with *something*, each appeared to feel it a duty to bring to the fair the best they had; and, owing to this prevailing sense of duty (*a feeling which should always prevail*) our exhibition of vegetables, &c., was rendered respectable. But the deficiency, if any, in the products of the soil, was fully balanced by the art, industry, and skill of our ladies. They, too, seemed impressed

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with the belief that to make our eleventh fair compare with preceding ones, they were called upon to make some exertion to give interest to the occasion; and nobly did they come to the rescue. The society's tents were literally lined with quilts, domestic and household manufactures, crayon drawings, landscape paintings, and many other useful and curious articles.

The mechanics and artizans of the county also aided much by exhibiting rare and improved specimens of their branch of industry.

It affords me pleasure to state, that in one very essential feature, the last fair excelled any previous one. The show of cattle, both in number and quality, far surpassed anything that was expected to be seen in this little three-cornered county; upwards of 100 head fine cattle were entered. There were gentlemen on the ground from some of the adjoining counties, and they unhesitatingly said, that "Little Rocky Rockland" turned out a better show of cattle than they had seen at home. This circumstance is mentioned, not to boast, but simply to convey the impression that the society is not only prosperous, but that its influence is showing itself on the agricultural interests of the county.

The annual address was delivered by Mr. Simon D. Demarest, a resident of the county, and gave very general satisfaction.

Officers for 1855.—President, Erastus Johnson, Spring Valley; Corresponding Secretary, A. Edward Suffern, Haverstraw; Recording Secretary, S. W. Canfield, Piermont; Treasurer, C. A. Debaun, Nanuet.

ISAAC SLOAT, *President.*

ST. LAWRENCE.

By the reason of the demise of our venerable president, Uriel H. Orvis, you will please to accept the following as a report from this society for the past year, being as far as we can comply with the law at the present time:

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The society commenced the year with funds in hand to the amount of.....	$536 83
Its receipts from members, &c.,.....	1,585 13
From the State,.....	170 00
	$2,291 96
Its disbursements for premiums and expenses were,...	1,691 35
Leaving in the treasury,.....	$600 61

The fair of the county was handsomely attended, and the exhibition in all respects worthy of this great county, except in cattle.

The number of thorough bred cattle were less than on any former occasion, while the exhibition of native stock was quite small. We hope to remedy this in future.

The great product of this county is grass, which was reduced one-half at least, by drouth; the result is, that the general stock of the county has been much reduced.

The attention of farmers is chiefly directed to the dairy here, and this has become a great and leading interest. Grass and stock are mostly raised as adapted to this interest. Much attention has of late been given, also, to the raising of horses, but chiefly subservient to the other interest, as consuming certain kinds of forage, rejected by cattle.

Sheep are becoming less raised; the county is quite level, and they do not thrive as well as cattle upon the lowland part; but upon the highlands, back from the river St. Lawrence, they do better. It is not likely this interest will be much extended here.

As to grain raising, our farmers are in direct competition with the great west, and the tendency is to check high rates. The past season, however, is an exception, as those who were so fortunate as to produce, are receiving very high prices. The crops were injured full fifty per cent by drouth.

Those farmers, it should be noted, who plowed to the depth of from eight to twelve inches, obtained very fair crops, as usual.

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We are happy to say that drainage is receiving some attention, and as far as we can ascertain, with good results; it having this manifest and immediate effect—enabling farmers to sow early, and so advance their crops as to escape drouth.

H. G. FOOTE, *Secretary.*

OGDENSBURGH, *December* 11, 1854.

B. P. JOHNSON, Esq.:

Sir—Your favor to our President, D. C. Judson, Esq , has been handed to me for reply. We have consulted relative to the queries addressed, and would premise by saying, that this county, containing a population of about seventy-five thousand inhabitants, is scattered over so large and sparsely settled a territory, that it is quite out of the question to give you other than very general replies and information. We can give you comparatively nothing, of any worth, to a statistician. The best that we can at present give, will be in the numbers and order of your circular.

1. The chief product is the dairy and grazing.

2. The number of cows has been increased; their pro rata produce we do not think as high as last year; the aggregate increase we do not think larger, or at most, but little larger, than 1853. A greater number of cattle exported than heretofore, and the same as to horses.

3. There are about 120,000 acres devoted to the dairy, and probably an equal amount to other cattle. The produce of the dairy is good; it probably yields from $7 to $10 per acre, gross.

4. As to crops generally refer to page 622.

5. There is a constant increase, to what extent cannot advise.

6. Should judge a decrease in cattle, an increase in horses and other animals. Breeds of cattle are crosses of Durhams, Devons, and a few Ayrshires on natives, besides any number of small black cattle, from Canada. Improved breeds crossed on natives are deemed best adapted to the climate, the dairy, and the market.

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7. More attention paid to correct farming than heretofore.

8. Not much; its advantages are undoubted. In my individual case, it adds largely to the crops, to the earliness of planting, to the surety of well filled ears, a good crop in good seasons, and anticipates rust, drouth and the fly.

9. Farms have increased in value from 50 to 80 per cent in three years.

10. Marketed largely at Brighton and Boston. Costs from five to ten per cent.

Relative to breeds of cattle for the dairy, I beg to turn your attention to page 361 of the "Country Gentleman," Dec. 7, inst., where you will find an article signed by me bearing on that point.

I am, sir, very truly yours,

H G. FOOTE.

Estimate of average crops in St. Lawrence, 1854, *from* H. G. FOOTE.

Wheat, 12 bushels per acre. Indian corn, 25 to 30 bushels. Oats, 20 bushels. Barley, 20 bushels. Rye, 25 to 30 bushels. Hay one ton per acre. Potatoes, 40 to 60 bushels. Diminution by drouth, wheat, 40 to 50 per cent; corn, 80 to 100 per cent; oats, 100 per cent; barley, late sown, 100 per cent: hay, 50 to 100 per cent; potatoes, 200 to 300 per cent; wheat, sometimes total loss by fly—say five to ten per cent on the whole county. Drained lands have been much less affected by drouth, because earlier sowed. State of farming fair.

Relative difference in prices over former years.

Wheat,	78	per cent higher.
Corn,	40 to 50	do
Oats,	100	do
Barley,	50	do
Hay,	75 to 100	do
Potatoes,	150 to 200	do

Except in eastern portion of this large county, where potatoes are but little less in quantity and price from usual.

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SARATOGA.

In obedience to the requirements of the statute, in relation to agricultural societies, the undersigned Secretary of the Saratoga Co. Agricultural Society, would, in behalf of the acting President of said society, present the following report:

The society has, for two years past, been unfortunate in regard to its annual fairs, so that it has not been quite as prosperous, pecuniarily, as formerly, but we trust that better times are coming. In 1853, it rained every day of the fair, and in 1854, it rained the last day, preventing the attendance of many to hear the address, delivered by Mr. Newman, of Fort Plain.

The drouth, that has been so general throughout the country, during the past summer, affected the crops in Saratoga county, full as much as elsewhere. Many articles, heretofore exhibited in profusion at our annual fairs, were almost entirely deficient this year, and some persons, who have heretofore been large exhibitors, said, they feared to bring forward their articles this year, they were so much inferior to their former shows.

The second day of the fair the weather was propitious, and the number in attendance was very large; the receipts at the gate for admission to the show grounds being very good indeed, but the last day marred it all, on account of the rain.

Our members are not at all disheartened by two years ill luck, and efforts are to be made this winter, to have the next fair held in a more central location, where it is hoped a more general attendance may be had. Should they succeed, the next fair will doubtless be the best ever held in the county, should the season be propitious.

The farmers of Saratoga county are advancing moderately in the way of improved cultivation, &c., but surely; and we notice a continually increasing interest for new and improved implements.

The work of building a railroad from Sackets Harbor through the Wilderness of Hamilton, Warren, and the north part of Sara-

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toga counties to Saratoga or Ballston, will open up a rich country to market, and we may expect, should the work be successfully carried out, that the north part of this county will be much enhanced in value and improved in the course of a few years.

Our society has not been in the habit of making any very strenuous demand for reports from exhibitors, and, consequently, I have none to send you.

The receipts during the past year, as per Treasurer's report to the Comptroller, have been as follows:

State appropriation from Comptroller, ...	$121 00
Books sold.	3 30
Cash for registering stock, at fair,.....	62 00
memberships, at 50 cts. each, ...	247 00
entry to show grounds,.....	95 76
There remained on hand at last report, ...	15 25
	$544 31
The treasurer has paid for premiums and expenses, during the year,.....	398 63
Leaving now in his hands,.....	$145 68

which will probably all be required to pay the premiums awarded at the last exhibition, together with what is to be received from the State.

Officers for 1855: Seneca Daniels, of Milton, President; Stephen Burtis, of Halfmoon, first Vice-president; Paul Dennis, of Stillwater, second Vice-president; Edmund J. Huling, of Saratoga Springs, Recording Secretary; George Mulliken, of Stillwater, Corresp'ng Secretary; Reuben S. Burtis, of Halfmoon, Treasurer; and an executive committee of two from each town in the county.

All of which is respectfully submitted.

EDMUND J. HULING,
Rec'g Secretary.

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SARATOGA SPRINGS, *Sept.* 12, 1854.

B. P. JOHNSON, Esq.:

Dear Sir—Your circular, desiring information in regard to the agricultural productions of this county, has been lying upon my table some weeks, and I have been endeavoring to obtain some facts to send you in answer, but so far, I can get nothing as definite as you desire for comparison.

Our county, taken as a whole, I do not think produces much more than is consumed within its borders.

Saratoga Springs, one of the most fashionable watering places on the continent, is annually visited by thousands, and a large tract of country around is drained during the season to supply it; in fact, large quantities of butter, eggs, chickens, and fresh vegetables are brought from quite long distances during the season to supply this market alone. There are also several manufacturing villages that consume farmers' produce, and send it to market in the shape of manufactures of cotton, iron, glass, and wood.

In the fall of the year there are usually some of the coarser grains, potatoes, and pork, sent to market out of the county; but I think not as much as the farm produce brought here from other counties during the year.

I know of no data from which to get anything near a true account of the quantity of land under tillage in the county.

I think the quantity under tillage is continually on the increase, as the county is steadily increasing in wealth and population.

The animal stock is, I think, on the increase also, for the same reason given above. Some attention is paid to improving the breeds, but not as much as I think might be profitable.

Scientific attention to farm cultivation is also increasing.

The subject of drainage is receiving some attention, but not a great deal yet.

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A large quantity of the productions of the county find a market within the borders of the county, as heretofore stated, but some pork, hops, barley, &c., are taken to Albany and Troy at small expense, but as to what per centage the expense is, I cannot say.

Very respectfully, yours, &c.,

E. J. HULING,
Recording Secretary.

SCHUYLER

Agricultural Society was organized in this county on the 14th March, 1855.

Managers—Henry Fish and Mordecai Cannon, Mecklinburgh P. O.; Jacob Hendricks, of Hector, Burdett; John Roberts, 2nd, Reading, Watkins; Isaac P. Seymour, Tyrone, Altay; Robert Hughey, Orange, Sugar Hill; Solomon Williams, Catherine, Burdett; John Ennis, Cayuta; George G. Freer, Dix, Watkins; John Woodward, President, Hector, Burdett; Wm. Ross, Vice-President, Reading, Reading Center; Cyrus Selring, Tyrone; Cornelius Harrig, Orange, Sugar Hill; Charles Mathews, Dix, Watkins; Eli C. Frost, Catherine; Hiram White, Cayuta; Orlando, Hurd, Secretary, Dix, Watkins; Tho's Evans, Treasurer, Dix, Watkins.

SENECA.

WATERLOO, *Feb.* 1, 1855.

COL. B. P. JOHNSON:

DEAR SIR,—The annual meeting of the Seneca County Agricultural Society was held at Seneca Falls on Thursday, the 25th ult., and passed off in the usual satisfactory manner. Whole number of members, 695.

Receipts during the year and in treasury,.....	$2,678 73
Expenditures during the year,.....	1,959 83
	$718 90

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Officers elected for 1855.—President—Joel W. Bacon, Waterloo. Vice-Presidents—Nestor Woodworth, Covert; Wm. F. Coan, Lodi; J. V. Grove, Ovid; Clement Leach, Jr., Romulus; Jos. Gamber, Varick; Henry Hoster, Fayette; Ja's Stevenson, Waterloo; Cha's Mynderse, Seneca Falls; Stephen Compson, Tyre, and Orrin Southwick, Junius. Secretary—George S. Conover, Rose Hill; Treasurer—John D. Coe, Romulus.

I remain, as ever, your obd't serv't,

J. W. BACON, *Late Secretary.*

Near Geneva, 31st *Oct.*, 1854.

B. P. Johnson, Esq.

Dear Sir,—Your circular of the 23d inst., is received. Owing to the great difference of crops in different soils this season it is very difficult to give anything like an accurate statement of the average of the different crops. What little wheat was raised in this county (Seneca) was upon the whole better than the two previous years; the drouth did not affect that crop much, and I think would average about 10 bushels per acre. I know of no crop of any great amount that averaged over 23 bushels per acre, while some crops did not average over 7 bushels, and some less; *that on drained lands was by far the best.*

The Indian corn crop was exceedingly irregular; on some loamy low lands the crop was tolerable, and also in some places they had some light showers, and their crop was tolerable, but on all heavy soils that got no showers the crop was a very poor one, and some had none at all, and I could not perceive any difference on the drained and undrained, as this season there was no water to hurt summer crops. Corn, I think, will not average over 20 bushels ears of corn per acre. Oats were better than corn in this county, and may average about 35 bushels.

Barley that was early sown upon land in good order made about 23 bushels per acre, while late sown would not average 10

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bushels, *and as undrained land could not be early sown, owing to the wet spring*, there was but a small quantity sown early enough to stand the drouth. I think the crop would not average over 12 bushels per acre. Rye is not grown here, neither is there enough of buckwheat grown to call it a crop.

Hay on land in good condition, and not pastured close in fall or early spring, was a tolerable good crop, some giving, I think, 1½ tons and over to the acre, but that pastured late in fall, and every thing eaten off that teeth could get hold of, *was very bad*, in fact was almost worthless as a hay crop, and I should doubt if the hay crop in this county averaged much, if any, over half a ton per acre, and I could not see that draining did much, if any good for the grass, but for barley, oats and wheat it is very important; in fact there is very little land in our county that will now *raise a crop of wheat unless it is drained.* Peas and beans are not raised as a crop, neither is flax.

Farming is improving some in this county, but only with a small proportion of the farmers, neither will it improve until less land (much less) is kept under the plow, more stock kept, and those better fed, the land drained, so that crops can be got into the ground in good season in spring, and the wheat not frozen out in winter. A number are draining, but almost all of them imperfectly; some have not proper outlets for their drains, some do not nor will not go deep enough, and almost every one too wide apart. I notice in Ontario county they are draining much more than in this county, and far more perfect. I have given you a candid statement, to the best of my judgment, of the crops and farming here. We have never had such bad crops in thirty-three years. The wheat crop in 1836 was less per acre, but I presume there was five acres sown then to one acre now, and I am of opinion wheat will still be higher before another harvest, and if the system of farming is not improved in this State, and also in Ohio, we will only be States that once raised wheat; land must be made dry to raise wheat, and must also be occasionally well manured, else the crops will still be smaller in the old

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States. Although I am almost certain the weevil took one-third of my wheat for two years past, yet my crops yielded in cash over *forty dollars per acre* for my wheat, and neither last year nor this did I get near the highest price, and nothing but draining and manuring made mine any better than my neighbors. I harvested 50 acres of wheat last harvest, and have now 67 acres growing for next season. We got rain enough to bring up the wheat, but it has been very dry of late, and wheat suffers except on very rich land. I have tried experiments with guano and tafeu,* a ton each, sowing them in different fields and in alternate lands, with salt on the other lands. I thought as my wheat was paying well I must try an experiment. My guano wheat looks very rich, but I noticed a field in my neighborhood that had a good application of good barn yard manure, that looks still richer than mine. I can see a little improvement by the tafeu, but next harvest, if I live, I will know all about it.

Our apple crop was pretty good, but not so good as last year.

Yours very truly,

JOHN JOHNSTON.

SENECA FALLS, *Nov. 2d*, 1854.

B. P. JOHNSON, Esq.:

Dear Sir,—Since I wrote you, I have seen some men from the south part of the county, and from the statement of the wheat crop, I do not now think that the county would average over ten bushels per acre, and I wish you to state it so in my letter, if for publication. I meant twenty bushels of ears of corn per acre, &c.; I believe that will be all it will go; please make those right in my other letter. Late potatoes were good, the early, almost worthless.

Yours truly,

JOHN JOHNSTON.

* Poudrette.

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STEUBEN.

The annual agricultural fair of Steuben county elicited increased attention, and gave evidence of a desire among our farmers to improve in their profession. The attendance exceeded our most sanguine expectations, and the exhibition was truly creditable to the industrial and producing classes of our citizens.

Our farmers have heretofore expended their efforts to improve, without interchange or association of purpose. At times were seen marks of progress, and something of culture and taste, amid a general waste of rudely tilled and rough lands. But through the intervention of our State and county associations, of the agricultural literature of the day, and the many inducements thrown around them to associate, our farmers now form a portion of the mighty aggregate combined by interest and inclination to advance, and to stand foremost in the amazing progress of our age.

Probably no county in the State assumes this *onward feature* more palpably than Steuben. Two years ago there were neither association nor combination of effort in all our agricultural industry. Isolation and want of system marked every department of labor, and the general scenery exhibited more of careless neglect than of careful or neat culture. Farms and stock of every grade bore this general impress, and the domicil, so sacred to our associations, presented but few attractions within or without.

The Steuben County Agricultural Society comprises the most of our farming and laboring interests, and diffuses through all classes its wholesome influences.

The present year has been one of peculiar interest in its operations, and its prospects of usefulness were never more encouraging. Its list of members has been largely increased, and all classes of our citizens become conscious of reaping increased benefits from its well directed exertions.

We notice that the farmer is becoming more thorough in his tillage, more careful in his selection and rearage of stock, more

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prudent in his outlays, and more studious and solicitous in arranging his grounds and buildings.

The proper management of farms is eliciting increased attention, and improved systems of culture are adopted, resulting in substantial benefits, thus encouraging further and more efficient advances in agricultural efforts.

These influences also reach the mechanic and manufacturer, inciting them to improve in their departments of labor, to produce the finest and most efficient models, wherein taste and utility combine to increase their value. It is thus that all classes become interested, impart and receive lasting benefits.

The annual fair was held at Bath, October 11 and 12. The number in attendance was unusually large. The receipts greatly exceeded our estimates, and although the premium list had been extended to some *five hundred dollars*, we have a large balance over for future and more extended rewards.

The exhibition far exceeded the highest hopes of the Society in the display of all the various articles brought together, in the numbers present, and the honors awarded the occasion. From all parts of Steuben and the adjacent counties all classes of citizens came to participate in this great gathering of farmers, to witness the evidences of their progress, and to encourage them in their most useful and important pursuit.

The exhibition of horses and colts attracted much attention; many of them were of the best blood in the conntry, and gave evidence of careful rearage and high value. The stock greatly exceeded in number and grade the exhibition of last year, though that was deemed very creditable. In sheep, probably no county in the State can exceed Steuben; some of the finest wool is here produced, and many of the most valuable flocks reared. Increased attention is given to the Leicester, Bakewell and other long wooled varieties, and fair samples of each were exhibited. The fruits in exhibition were very superior—not to be exceeded anywhere—shewing, that our citizens have been careful to select

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the best varieties, and have bestowed upon them the most careful culture. Samples of "*home-manufactures*" were produced of fine and substantial texture; indicating that domestic industry has not entirely departed from among us, but that it still lingers in our midst. Nor were there wanting specimens of fancy and ornamental work of the needle and the pencil—these, combined with the more useful, to lend attractive features to the occasion—the same as women's presence blends most beautifully with that of the field labor, and the artizan.

The Hon. L. F. Allen, of Erie county, delivered an eloquent and interesting address, in which he demonstrated the farmer's true position in the social circle, and his true interest to be secured by individual exertion and industry,—which was listened to with marked attention, by a large and intelligent audience.

Upon the whole, every portion of the exhibition was most satisfactory, and the general impression expressed, was, that each succeeding fair would exceed the preceding in variety and interest.

The receipts and disbursements of the society, during the current year, to December 16, 1854, are as follows, viz:

Balance on hand, April, 1854,		$109 31
Monies received from the State,		138 00
do by subscription,		818 89
		$1,066 20
Disbursements:		
Amount of premiums paid,	$370 00	
do other expenditures,	260 96	
		630 96
Balance on hand,		$435 24

BATH, *December* 16, 1854.

Officers for 1855:—G. Denniston, President, Prattsburgh; Reuben Robie, Treasurer, Bath; R. H. McKay, Secretary, Bath; D. McArthur, Corresponding Secretary, Bath.

The circular requesting a correct statement of the agricultural condition of Steuben county, is received, and I hasten to pen such facts as I find within my reach.

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But little over fifty years ago, the county of Steuben was covered by a dense forest, and all the lands comprised within her borders were held at a nominal value. The amount of products, as developed by the statistics that have been recently taken, will somewhat surprise those who have observed the number of her population, and the time when the first settlements were made.

For years succeeding the settlement of the county, its actual products were known only by the estimates of travelers, or such incidental calculations as could hardly approximate the truth; and but recently have any of our citizens considered it of any importance to collect the facts connected with the amount of products, and their aggregate value, as well as the relative proportion borne to each other by their several kinds.

One of the most interesting features of our county, is the variety of resources that are spread out by the diversified character of its surface. The rugged configuration of its lands, together with the abundance of water power favorable to hydraulic purposes, and a soil rich in the production of grain and grasses, as also the forests, from which are obtained large quantities of timber.

The circular contemplates a brief view of the real value of the more prominent products of the county. We find this value to be now very great, and likely to be much increased. The several classes of agricultural products, comprising live stock, cereal grains, &c., are the chief products of our county. Within its territory are comprised some 700,000 acres, of which near 500,000 are under cultivation, and the balance still bearing its original forests of oak and pine.

From this we can estimate its agricultural capacity. If all the lands under cultivation were sown to wheat, the produce would be about 6,000,000 bushels; about the one-eighty-fifth part of all that is produced in the United States. Or, if these lands were devoted to pasturage, what an aggregate of wealth they might sustain in animal stock!

But our enquiry is for facts, and not speculations. Of these we have at hand figures indicating the amount of capital invested

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in agriculture, and its annual return. From these figures we see that there are invested in farms, $13,581,268; in farming implements, $676,792; in live stock $2,155,040; swine, $23,989; making an aggregate of $16,437,139. From this investment we notice the following returns, viz: Bushels of wheat, 853,434; barley, 153,056; oats, 913,948; rye, 16,033; buckwheat, 115,390; Indian corn, 297,717; peas, 45,202; potatoes, 360,725; wool, lbs., 399,543; butter, lbs., 1,918,465; cheese, lbs., 210,889; flax, lbs., 16,598; hay, tons, 111,869; animals slaughtered per annum, value, $232,297; value of home manufactures, $94,991; maple sugar, lbs., 294,897; gallons molasses, 93,991; beeswax and honey, lbs., 94,901. Add to these the products of the orchard and the garden, and the yearly returns would exceed five millions of dollars.

It will be seen that the chief wealth of Steuben county is in her lands, in the agricultural capacity of her soil, and the yearly products therefrom.

It would be an interesting problem to solve, how much of all this wealth has been created by labor in the county, and how much has been brought in by settlers. A great part of the value of the land has been given to it by labor, and all that attaches to towns and villages has been created by labor exerted therein.

From the figures given, it will be seen that the chief products of the county are the *cereals*, and the products of the dairy. Of the former, the yearly aggregate reaches $2,294,960; of the latter, $721,415.

The products of the present year were largely decreased from that of the year previous, and fell far below our usual average. The cereal crops would not average more than one-third the usual yield, and were it not for the unusually high prices, the income would be far below that of any other year. The dairy has fairly maintained its usual average the present year, and has advanced in the aggregate beyond that of any former period. This department of industry is receiving increased attention, and the time is not far distant when Steuben will rank with Chemung, Greene, and Orange in quality and quantity.

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The cereal crops embraced a large area for the year 1853, and were unusually fine. It is estimated that for that year, 72,000 acres were devoted to the production of wheat; 15,000 acres to corn; 10,000 acres to barley; 35,000 acres to oats; and 6,000 acres to peas and potatoes. But during the year 1854, owing to the extreme dry weather, but little inducements were recognized to increase these crops, or to attempt to maintain their average. Probably not more than one-half of the quantity of land was sown to wheat the last autumn, and a large falling off was noticed in oats and barley the last spring.

Some 25,000 acres of land are devoted to dairy purposes, and 15,000 acres to the pasturage of sheep. The area appropriated to the dairy is yearly increasing, and will continue to do so until Steuben becomes emphatically a dairy and a grazing county. Wool growing is not so steadily in the advance. Probably the quantity produced is decreasing, as many large flocks have been sold, and their proprietors have gone into other business. The present year has been disastrous to this kind of production. The long continued drouth induced many to sell their entire flocks, and whether they will be replaced the coming season is problematical.

The number of acres of land under tillage, for all purposes, is steadily increasing. In 1850, the whole number under cultivation, was 336,981, or about the one-half of all the lands in the county.

The advancing price of lumber induces extended clearings, and consequent culture, so that at the present time full two-thirds of all the land in the county is probably under cultivation and devoted to agricultural purposes. But a few years will intervene before the forests will have disappeared, and our hills, and valleys, and plains will teem with flocks, and herds, and cereal crops. Happy will it be for our citizens, if during the clearing process, that groups, and clumps, and single trees be spared to diversify the landscape, to lend a varied beauty to the scenery, and to mingle somewhat of taste, refinement, and a love of the beautiful, with that for dollars and cents.

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The animal stock in the county is yearly increasing as the lands become cleared and improved. In the year 1850, there were 12,744 horses; 21,584 milch cows; 6,744 working oxen; and 27,162 other cattle; 156,766 sheep. With the exception of sheep, the animal stock has increased since that time twenty-five per cent.

The aggregate of the animal stock, for years past, was comprised of the common native breeds, with but few exceptions. But a marked improvement in every kind is now seen, and that improvement is extending to every farm yard. The Devons and their grades, the Durhams and their grades, and other improved breeds, are increasing most rapidly in every section of the county.

They who devote their attention to the dairy and market prefer the "Short horn" and grades, and some of the pure native breeds; for working cattle the Devons and grades are held in higher estimation.

I have noticed a great improvement among our farmers in the rearage and keeping of stock within the past five years. Previous to that time they were reared in the most careless manner, and during the coldest winter days and nights received no other shelter than the rear of a hay stack or barn. Farmers begin to protect their stock in warm stalls, and rear them with careful attention. The stock of the county having "*roughed it in the bush*," for years, now begin to enjoy the "clearings," and to participate in the progress of civilization.

Increased attention is being given to science among our farmers. The time was when it was common to hear "book farming" condemned; but the farmer begins to see that agriculture is not the mere physical employment of the tendons and muscles, but requires mind, thought, and judgment, to be followed with success; that it is, in fact, a *science;* that it embraces most intimately the laws of nature in all their varied phases, from the vegetation of a blade of grass to the functions and economy of animal life; that it embraces the chemical analysis of soils, of

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manures, and of every product he attempts to raise; it is connected with the laws of trade, of contract, municipal regulations—a cultivated and refined taste to see and to appreciate things appropriate to an end, and a love of the beautiful. These are recognised as requisites in the profession of agriculture, and the results are seen in improved tillage, in richer crops, in better stock, in symmetrical enclosures, in tasteful dwellings, in ornamented lawns, and happy firesides, where culture, sentiment, and affection preside.

But a small portion of our farmers pay any attention to drainage, although three-fourths of the farms in the county would be benefited thereby; many manage to plow in such a way as to throw the soil up by back furrow, leaving a deep dead-furrow which carries off much of the surface water; beyond this, drainage has not elicited general attention. Some few of our farmers have given the subject some practical attention, and have been amply rewarded thereby. A greater portion of the lands in our county needs draining, even where the surface water does not appear, but which renders the soil cold, and obstructs vegetation. Wherever drainage has been thorough, the crops can be put in in a better condition, and they will maintain their growth to maturity, withstanding all the vicissitudes of the season. Experience shows that thorough drained lands will maintain sufficient moisture for all agricultural purposes, longer than those undrained, during severe drouths.

Farms are yearly increasing in value in all this section of the State. Ten years ago the best farms could have been purchased for $20 per acre; farms then ranged in price from $8 to $20, except village farms, which were held at a higher figure. During the present year sales have been made from $25 to $40, and adjacent to villages, from $40 to $100 per acre. From all the data at hand, I should estimate the increased value of farms in all the county, since the year 1850, to be 25 per cent.

Steuben county is favorably situated as to markets for its products, the communication with the seaboard being by canal and railroad. By means of the Crooked Lake canal a market is brought home to all the northern portion of the county; by way

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of the Seneca Lake and the feeder to the Chemung canal, our southeast borders are accommodated; the New-York and Erie railroad passes through our southern towns; and the Buffalo, Corning, and New-York railroad, the middle tier.

The extreme northern towns find a ready and reliable market at Penn Yan, Branch Port, Hammond's Port, and incidentally at Centre Port; the western towns, at Dansville, in Livingston county, and at Hornellsville; the central and southern, at Bath, Corning, and Addison.

The grain market in our county is as reliable as that of any other part of the State—equal to that at Rochester, and something higher. This market is maintained by eastern orders, which, to be readily filled, require the highest figures, and of which our farmers reap the benefits. The cash price for grain here is generally within the cost of freight to Albany, and sometimes higher.

Butter is marketed at Penn Yan, Hammond's Port, Bath, Corning, Branch Port, and sometimes at Elmira; the price is within one and a half to two cents of the New-York prices, and sometimes a fraction higher. The cattle are generally bought up by drovers; they generally sell high, and hardly pay the drift eastward.

Most of the wool raised in the county is bought on eastern account; and fortunate is it to the wool grower when several eastern houses are in the field filling orders; the highest prices are then obtained, and private speculation fares but poorly.

Our markets for all our products range with that of Albany and New-York, deducting freight and insurance. Wheat has sold readily for $1.25; barley for $1.28 to $1.12½; corn, $1; rye, $1.12½; oats, 50 cents; butter, 18 to 20 cents; wool, 20 to 40 cents; potatoes, 50 cents; hay, $12; working oxen, from $75 to $140; milch cows, from $20 to $40; horses, from $75 to $200, &c., &c.

In all our rural districts, labor is the great accumulator; it goes to work without difficulty on its own account; it cuts down

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forests, clears up lands, cultivates the soil, and causes the hills and valleys to produce their abundance. Labor, guided by science, solves the question of supply, and presents every inducement to encourage enterprise in individuals, ever requisite to ensure success.

G. DENNISTON, *President.*

SUFFOLK.

SETAUKET, *December* 18, 1854.

B. P. JOHNSON, ESQ.:

Dear Sir—Your circular, soliciting my attention to some inquiries in relation to the agricultural condition of this county, has been received. I have given some attention to the matter and submit the following:

1st. The chief agricultural product of this county I consider to be Indian corn; other cereal grains and root crops are raised to a considerable amount, but this is generally considered by our farmers to be the main and most important crop, and best adapted to our soil.

2. The crop of Indian corn this year, I think, is not more than two-thirds of the usual yield on an average. The very severe drouth in the latter part of the season, and at a time when this crop requires mosture to fill out the ears and bring it to perfection, occasioned it in some sections, and on some of our arid soils, to be almost an entire failure of grain, with a very much reduced quantity and quality of stalks for fodder.

3. I am unable from any means which I have at hand to make anything like a correct estimate of the number of acres devoted to this production.

4. I am of the opinion, from some observation and inquiry, that the crops of wheat and rye in this county were not more than two-thirds of their usual yield in quantity, and the quality

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of the grains quite inferior, being very much shrunk. The crop of oats also was quite inferior. Of potatoes, almost an entire failure, except in particular localities where they were planted early, and matured before being affected by the drouth. The rot I think has not been so general or so destructive this season as in past seasons. The crop of buckwheat was in many sections of our county almost an entire failure; the extreme drouth at the usual season of sowing prevented its being sown generally until late, and the early frosts in many instances completed its destruction. Turnips were generally a very short crop, as at the season of planting it was so dry that seed failed to germinate, or if it did, the plant perished for lack of moisture.

5. The number of acres under tillage is increasing. The draining and bringing under cultivation the lands through the middle of the island, heretofore denominated "the barrens," is adding to the quantity to some extent, and various other causes are tending to produce an increase.

6. The number of animal stock, I think, is decreasing in this county. In consequence of the high price of meats which has ruled for the last year or two, the farmers have been induced to sell their lambs and calves to the butcher rather than keep them. There has been very little stock kept in this county except the native breeds until within a few years past; there are now many gentlemen in the county of abundant means who are sparing no pains or expense in procuring the best of improved breeds of cattle and sheep. The several breeds of cattle have each their advocates and admirers. The Short horns are very much the most numerous, and I suppose would be generally the most approved by our farmers for the dairy and for market, but considering the expense of keeping, I think the Devons would find some cogent advocates of their superiority.

7. I am unable to give an opinion in relation to the increase or decrease of scientific attention to farm cultivation. I think, however, that there is very little scientific attention given to the subject.

8. Draining is very little required in our county, and consequently has received but little attention.

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9. The va'ue of farms is increasing, as well from an improved condition of agriculture as our nearness to the city of New-York, and our improved facilities for getting to and from that great city.

10. The market for the products of this county is in a great degree a home market, though very considerable is sent by the railroad as well as by water to the city. This would seem to tell not very well for our agriculture, but it must be recollected that our situation is peculiar; we are surrounded by water—the ocean on one side and the sound on the other, with the coast on each side indented with bays and rivers, which afford abundant and profitable fishing The fishermen who are employed in procuring fish for New-York market are dependent upon the farmers for their food, and many of our farm products, instead of being sent to New-York for a market, are sold to the merchants at the principal fishing points, and are by them re-sold to the fishermen, receiving that money which has been received from the city for fish and other products of the waters. It has been stated as a fact that more money is received from the sale of fish, oysters, &c., from the waters of Suffolk county than from all the products of some of the most flourishing agricultural counties of this State; but I presume it would be better for our agriculture that we were denied these seeming advantages.

11. I am unwilling to give what I consider to be an average of the yield per acre of the crops in our county for the past year, as I think it would answer no good purpose, inasmuch as it would be no criterion by which to judge of anything for the future.

In conclusion I would add, that our Agricultural Society has become defunct, in consequence of the officers who were elected for this year not having attended at all to their duties.

SAMUEL L. THOMPSON.

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TIOGA.

FARMING IN TIOGA, BY HENRY YOUNG.

OWEGO, *December* 20, 1854.

Dear Sir—It is with reluctance I relate the fate of the Massachusetts corn you sent me. I did not get it until my corn was planted and up, which prevented me from giving it a fair chance. However, I planted it under these unfavorable circumstances; it came up and grew pretty well, and got perfectly ripe. It has very deep kernels on the cob, and promises to yield well. I cut it up myself, and placed the stout in one corner of the field, supposing it to be perfectly safe. I sent a man into the field husking, and he, either by mistake or wilfully, husked it out, and put it with the other corn, without my knowing anything of it until it was put into the crib. My son was accidentally passing by it and discovered it was husked out; he immediately searched the stout, and found six or eight small ears, which he carefully brought home and took care of. I intend in the spring to plant it in a favorable situation, so that I may ascertain its good qualities, if it has any.

My crop of corn was good this year, although my neighbors' was light, and the corn crop generally through this section of country was poor. I had between eleven and twelve hundred bushels of ears from 9½ acres; 3¾ acres produced between 500 and 600 bushels of ears. It was the stoutest piece of corn I ever saw; it was a complete thicket, and stood from nine to eleven feet in height; the ears were from ten to fifteen inches in length. My oat crop was very heavy, and badly lodged; more straw than I had two years ago, when the yield was sixty bushels per acre. My crop of hay was excellent; five acres produced twenty tons; the other part was very heavy. My neighbors' crop of hay was very light, and the crop generally through this part of the country was very poor. My crop of potatoes was good both in quantity and quality.

These crops all grew upon the notorious Cox's patent, where thirty-five years ago, it would scarcely produce a new grain from an old one. My crop of wheat on the hill farm was very poor

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although it looked remarkably well in the fall and early part of winter. The rye was middling. The culture of the corn crop is generally on land that has been seeded down two or three years, with a coat of barn-yard manure, about twenty loads per acre every alternate time it is plowed up. The land is plowed in April, and the corn planted about the middle of May; as soon as the corn can be seen sufficiently clear, the cultivator is passed through them both ways, and as soon as the corn is high enough, the plow is passed through them both ways; the hoes follow the plow the last time. In about two weeks the same process is again performed, with the difference of plowing the earth to the rows, instead of from them. Some of my neighbors, with a view of saving expense, use the cultivator instead of hoeing, which has a bad effect, as it leaves the grass in the hills of corn, and also leaves the land in a poor condition for the next crop. I observed a piece of land that had been cultivated without using either hoe or plow. When it was plowed up the following spring, it was very cloddy and hard, and consequently unproductive, as the land must be sufficiently pulverized, either by manure, plowing or hoeing, before it is fit food for the roots of plants to feed upon. My system of cropping appears to be as near perfection as any other, although very simple; which is, corn and oats, and seed down with grass seed, two or three years; the sod to be manured every alternate time it is plowed up, as the superiority of my hay crop plainly demonstrates this uncommonly dry season. My corn and oat crop was almost double to the general crop of this section of country; so that this system produces more corn, oats and hay, for a course of ten or fifteen years, than almost any other commonly pursued, and leaves the land in a high state of cultivation. But it requires to be all done perfectly, especially the corn crop. Any person that can establish a system that universally increases the crop, say five or six bushels per acre, is entitled to the highest premium, as the amount throughout the whole country would be immense; whereas, a single acre producing a double crop, would not enrich the owner or consumer to any great extent. It often engrosses his whole attention, and causes him to neglect the other part of his farm by not sufficiently

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hoeing, a thing often neglected and not half performed, which causes so many poor crops. As a further demonstration, take two beds in a garden of equal quality; plant them with cabbage, and hoe one of them every week until the leaves touch each other, and not hoe the other at all; it will be found that the hoed one will be as large again as the other. Or plant a field with corn, and well plow and hoe half of it three or four times, and not plow or hoe the other half at all; the hoed part will produce four times as much as the other. One great benefit is, that it keeps plants moist in dry weather, the advantage of which to their growth is easily seen. This good office it performs on a double account. First, as they are better nourished by hoeing, they require less moisture, and consequently carry off less, for those plants which receive the greatest increase, having most terrestrial nourishment, carry off the least water in proportion to their increase. Thus, barley or oats being sown on a piece of ground well divided by tillage and manure, will come up and grow without rain, when the same grain sown on another part of the same land, not thus manured and tilled, will scarce come up at all without rain; or if they do, will wait wholly for the rain for their growth and increase; a demonstration that the tilled earth receives an advantage from the dew which the untilled does not. Dig a hole in any piece of land of such a depth as the plow usually goes to; fill this with powdered earth, and after a day or two, examine the place, and the bottom part of the earth and the bottom part of the hole will be found moist, while all the rest of the ground at the same depth, will be found dry. Or if a field be tilled in lands, and one land made fine by frequent deep plowing, while another is left rough by insufficient tillage, and the whole field be then plowed across in the dryest weather, which has continued long, every fine land will be turned up moist, and every rough land as dry as powder from top to bottom.

The beginning of last October, I had occasion to go to Elmira. I closely observed the crops of corn all the way from Owego to that place, although a railroad car is not a fit place for observing objects in a country through which you pass. However, I could plainly see the crop of corn was deficient. I did not see a piece

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all the way that was more than middling, and many pieces far short of that. I went about twenty miles down the Susquehanna, and about the same distance up the Chemung. I saw several pieces of land that were only partially mowed, perhaps two or three acres in one part of the field, and an acre or two in another, and then a streak not mowed at all. I saw a considerable field of oats not harvested at all. I also saw several pieces of land recently plowed which did not indicate that the next crop would be abundant. The corn crop was all in stout—very little husked—which afforded a good opportunity of judging the weight of the crop. A considerable quantity of it did not much exceed three feet in height. The land on the Chemung has always been reckoned first rate quality; now to see land of that description with such miserable crops on it, plainly indicates the culture is deficient.

All my practical operations are based on the theory of vegetable nutrition, although they differ some in three courses from the rules laid down by Mr. Tull. He went farther in that theory than I have yet done, by establishi g a permanent system of unbroken cropping, that improved the land without the aid of manure, by growing wheat for a number of successive years on the same land. Whether that system would be profitable for growing a number of successive crops of corn is a problem as yet unsolved. The heaviest crops of corn I have raised has been with manure, combined with the practical part of that theory. Some of my neighbors say the reason why my crops are superior to theirs is because my circumstances will allow me to farm as I like. If I, or any other person, can increase the crops and improve the land by adopting a better system of tillage, we may naturally conclude he would soon be in circumstances to farm as he liked, as I suppose any person would prefer a good crop to a poor one. One of my neighbors planted a field of corn of twelve acres, and once hoed one part of it very imperfectly, and did not hoe the other part at all, with a view of saving expense; when he came to ha st it he had not more corn or fodder than I had from 3¾ acres, which plainly shows that corn, or any other crop, cannot derive sufficient nourishment for its growth without the soil is sufficiently pulverized for the roots of the plant to feed upon.

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Perhaps when you read some parts of this letter you may suppose it is written in a boasting manner, but I can assure you that it is not the case, it is only done to show that first rate crops cannot be obtained without first rate culture.

Yours respectfully,

HENRY YOUNG.

THE CROPS IN TIOGA COUNTY, 1854. R. HOWELL, NICHOLS.

1. *Wheat.*—The wheat crop amounted to almost nothing in this vicinity, the wheat midge and rust having, with few exceptions, destroyed the crop; the average per acre for the county is about three bushels; a large number of fields were not harvested, the grain not being worth it; a few large farmers cut from 30 to 40 acres, and found by thrashing they had but 80 bushels; a few farmers had small lots of wheat on new land that yielded 10 bushels per acre—one case in sight of my house. Spring wheat fared much better, but little sown; it has been found best to sow spring wheat about the 15th of May.

2. *Rye.*—The average is not more than 10 bushels per acre; in a few instances the yield was very good, but in many not more than 5 bushels, and some, from cause unknown, unless rust, yielded not more than 2 bushels per acre.

3. *Indian Corn.*—The yield of this grain varies more than any other, owing to the different varieties of soil. A soil that would endure the drouth, like some of the low river flats, and some of the high hills, yielded from 40 to 50 bushels per acre, while some of the gravelly land yielded less than 10 bushels per acre; the growth of stalks was generally good—the average yield is about 25 bushels per acre.

4. *Barley.*—This grain, like all others, has been much injured by the drouth, and not a large amount sown; the yield is not far from 25 bushels per acre.

5. *Buckwheat.*—This grain suffered very materially by the drouth, many fields hardly yielding anything; there was a larger

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number of acres sown than any year before; the yield is about 10 bushels per acre.

6. *Oats.*—The average of oats is not more than 18 bushels per acre; a number of fields did not yield half of that amount, while a few went double that; the crops being now generally thrashed in this vicinity, a larger amount of light oats was found than in any previous year; there was a large amount of land sown.

7. *Beans* and *Peas* but little raised in this vicinity; almost every farmer raises a small patch of both; the bean was much injured by the drouth, and the pea but little.

8. *Grass.*—Grass, for pasture, seemed to endure the dry weather very well the past season, a majority of farmers having quite plenty of pasture the season through; the hay crop was better than for a number of years before; the yield was one and a half tons per acre; a few old meadows in the north part of the county was as light as last year, yielding not more than half a ton per acre; frequent seeding and new meadows are the only remedy.

9. *Flax.*—I have heard of but one field of flax in this vicinity; time was, when nearly every farmer raised a patch of flax, and the hum of the spinning wheel was heard for weeks in almost every house; but the cheap cotton, together with the piano and accordion, and a considerable amount of laziness, have taken the place of the wheel and loom.

10. *Potatoes.*—This crop was not half as much injured by the drouth as was thought even on the first of September; the late rains were the making of the crop; a large amount was planted, and the average yield is about 100 bushels per acre, and generally good size and sound; the crop increased 50 per cent. after the 6th of September.

11. *Millet.*—This crop is sometimes raised to good advantage in this county; the grain is about equal to corn, and the straw to timothy hay for fodder; the yield is about 30 bushels per acre; it is sometimes double that amount; the crop should be raised on new land, or on old made rich by manure.

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12. *Fruit.*—Considerable pains have been taken with fruit in this county within the last 20 years; a majority of orchards are grafted, especially those that have been planted within 30 years; there is but little fruit except apples, peaches, pears, and cherries in small number; the amount of fruit this year is very great, amounting to from hundreds to thousands of bushels in every orchard; a large amount has been shipped for the south part of the State and New-York.

13. To show the great damage the drouth has been to crops in this vicinity, I will say the general yield of grain in a fruitful season is: rye, 15 to 20 bushels per acre; corn, 45 to 70; barley, 30 to 45; oats 35 to 70.

14. There has been but little draining in this vicinity—not thorough draining.

14. There is a regular progression in farming in this vicinity, and a steady improvement in stock, and but few counties are putting up better buildings or mills.

16. In connection with the above, I will give the price of grain and produce in this county at the present time: Wheat, $2; rye, $1 12½; barley, $1; buckwheat, $1; corn, 87½c. to $1; oats, 46c.; buckwheat flour, $4 per hundred; butter, 16c. to 21c. per lb.; pork, 5c. to 5½c.; beef 4c. to 5c; wool, 28c. to 32c.

The price of cattle is: Working oxen, $80 to $130; good fair oxen, not less than $130; common cows, $25 to $35.

There is a constant rush of grain, butter, and meat to market in this vicinity at this present time; hundreds of bushels go daily by my door.

ROBERT HOWELL.

TOMPKINS.

December 26, 1854.

I herewith submit the report of the agricultural transactions of this county, for the year 1854. I only regret, that time and practical experience prevent me from giving the report a more full and elaborate character.

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The agriculturists of this county, as a class, are giving the subject more attention than formerly, and the effect of our annual county exhibition is manifestly enlisting much attention to improvement of farm cultivation and stock among all classes. Our annual exhibition was held on the 27th and 28th of September, and a large and general display of stock was exhibited. At the conclusion of the fair the society assembled at Clinton Hall, and listened to an able and eloquent address from Hon. A. Wells, at the conclusion of which a vote of thanks was passed for the instructive address, to which a crowded audience (in which the ladies of the county were well represented) listened.

The awards of the committees were then declared, amounting, in the aggregate, to $226.00; 78 copies of Transactions and Institutes, and 81 diplomas, to the successful competitors.

The receipts of the society were as follows:

From membership and at the door of the Floral exhibit.,	$204 00
Cash receipts on cattle ground,.....	38 00
From the State,.....	114 00
	$356 00

Paid expenses of show, for inclosures, attendance, hall decorations, printing, &c., ...	$80 45
For diplomas and charges,.....	30 63

Officers for 1855: — President, Smith Robertson, of Dryden; Vice presidents, A. B. Lamont, Dryden; Orrin Bostwick, Enfield; David Crocker, Jr., Lansing; Isaac Banker, Hector; E. L. B. Curtis, Danby; Ph. Thompson, Ulysses; Lafayette Cutter, Newfield; Aaron Woodbury, Groton; Augustus Phillips, Ithaca; Thomas M. Boyer, Caroline; Corresponding Secretary, N. Crittenden, Ithaca; Secretary, Chas. G. Day, Ithaca.

The increased display of improved breeds of cattle was particularly to be noticed; at no previous fair had so large number of cattle been on exhibition, and some fine specimens of Durhams and Devons were particularly to be commended. This branch of husbandry is receiving much attention, and from the stock on ex-

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hibition at our present fair, no doubt can be had, that but a few years will elapse, before the herds of Tompkins county will not suffer in comparison with those of any county in the State.

We also had an average display of fine-wooled and grade sheep. The attention to the improvement of wool and the French merino for some years past have made a marked improvement, and representatives of the Reed Burritt and the Morrell flocks gave flattering evidence that their labors in sheep improvement are beginning to be emulated.

The exhibition of horses was limited in number, and not an average display, and but a few samples of draft and carriage horses were observed as deserving commendation. The average show of horses was not an improvement on any previous show of the Society, but was considered by the best judges as quite inferior to those met with at neighboring county fairs.

Swine and poultry were exhibited in force, and some specimens of improved breeds of porkers were shown, which were favorably contrasted with others who were on exhibition, evidently better fitted for souse and sausage than for bacon.

Numerouse coops of various breeds of fowls were on exhibition deserving of notice, but the committee hesitated to express a decided preference for any particular breed, as it was satisfactorily seen most of the foreign varieties all sprung from the same breeds. Cochin China, Shanghae, &c., were classed as the same variety, the distinction being only of interest to the fancier and speculator, who are afflicted with the hen fever.

The display of fruits, in consequence of the Horticultural Society of this county having held their annual fair two weeks before, was not as rich in varieties as on some former occasions, but the varieties of apples, pears and peaches were very numerous, and specimens from this county successfully bore off some of the first prizes at the State fair in New-York. The peach crop of this county is becoming every year of more importance, and the reputation of our nurseries and fruit has attracted the attention

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of cultivators in many parts of this and adjoining States, and it is admitted that our peach crop cannot be exceeded in quality by any other portions of the State. I can hardly refrain from embodying in this connection a passing notice of the horticultural floral exhibition held in this village on the 14th September, when guests from abroad united in pronouncing the rich display of fruits and flowers as exceeding anything they had ever witnessed. Several competitors displayed over thirty different varieties of peaches, and embraced in the general exhibition were at least 100 perfect specimens of the most choice and perfectly ripened varieties of this fruit alone, with a great variety of plums, quinces, pears and apples.

In conclusion, I can say that the agricultural interests of this county are receiving much scientific attention, and the increase of crops both of the wheat and coarser grains, gives encouraging hopes that our county is keeping pace with the agricultural advance of other portions of the State.

Many parts of the county are well adapted to grazing, and our dairy productions are every year becoming a source of wealth to those prosecuting that business, and the golden butter tubs filled from our clover hill sides are bringing a more sure return than is realized by most of those who, abandoning the comforts of home, are seeking its hasty acquisition in the mines of California.

The high prices ruling in market for good butter for the last few years has enlisted very many of our best class of farmers in the dairy business, and Tompkins county butter tubs can stand upon their own bottoms beside the best specimens of Orange county.

CHA'S G. DAY, *Secretary.*

THE CROPS. FROM SMITH ROBERTSON, DRYDEN.

B. P. JOHNSON, Esq.:

Your circulars, desiring information in regard to the agricultural interests of Tompkins county, were duly received, but owing to want of opportunity for procuring the desired information, we

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have delayed our annual report and the reply to your inquiries until this late day.

It would be impossible to answer the first three questions of your circular definitely, from the fact that the products of our county are so various, and of such approximate value, that we cannot be said to have any one chief product. Probably the oat crop is of greater value than any other, but we have not the data from which to make any definite estimate as to quantity. Both quantity and quality were greatly injured by the drouth, which was severer and of longer duration than was ever known; so also the other crops were greatly injured by the excessive dry and hot weather, say twenty-five per cent., at least, of their average value.

The average per acre of the various products of our county, is as follows, to wit: wheat, 12 bush; indian corn, 25; barley, 15; rye, 15. Buckwheat was more injured by the drouth than any other crop; many fields were completely ruined, and but very few could be estimated even at half a crop, say 15 bushels. Hay very light; new meadows, one ton per acre, old meadows not half that amount. Potatoes, though better in quality than in former years, not having been much affected by disease, are a very light crop, say 20 bushels. Beans, 10 bushels. But very little attention is paid to peas and flax. Wheat was not so much injured by the fly as in some previous years; however, we think the injury done by this troublesome insect, may be put at 20 per cent.

Drained lands have evidently suffered from the drouth much less generally, than undrained. The reasons, we think, are obvious. The spring was very wet and backward; of course, drained lands were worked much earlier and better than those not drained, and hence the crops had an earlier and more vigorous start than upon those that were heavy, not having been cultivated so early or so well. Most of our farmers are doing something at draining; many are making it a matter of the first importance in all lands of tight subsoil. It is believed the number of acres under tillage, is much greater than in previous years, which will make up, to some extent, the loss per acre.

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The number of animal stock, without doubt, is considerably less than in former years. The breeds are various, including natives or grades, and most of the improved breeds of our country. A lively interest is awakening among many of our farmers in regard to the improvement of stock. Of the improved breeds, Devons and Short-horns, or Durhams, have attracted most attention, Short horns formerly taking the lead; but latterly, Devons have become more numerous, and have many admirers. In regard to comparative value for working purposes, the Devons are admitted to be decidedly superior; for beef and dairy, counting the expense of keeping, there is, among our most intelligent farmers, a decided difference of opinion, which of course will continue, until long continued and systematic experiments shall settle the question. Merely for the dairy, there are many who believe our native or grade cows, as a class, superior to any other.

Our people are becoming more and more awake to the value of practical science in connexion with agricultural pursuits. One or more of our valuable agricultural journals, find inquiring readers in almost every farm-house of Tompkins; books also, upon the science and practice of agriculture, are becoming very common among the people. It is believed the Transactions of the State Society, are doing incalculable good in every nook and corner of the county.

As to the value of farms, there is rather an increase than otherwise. During the early part of 1854, there was much more than a usual amount of exchanges and sales of farms in this county, from various causes, and I think at an average increase of price of fifteen to twenty per cent. on former value; many farms readily brought $80 to $100 per acre, which had in previous years been held at $50 to $75, and second rate lands experienced a corresponding advance.

SMITH ROBERTSON, *Pres't.*

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ULSTER.

The annual fair of the Ulster County Agricultural Society for 1854 was held at the village of Kingston, on the 13th and 14th days of October.

The attendance was much larger than usual. The show of stock, though fair, was hardly equal to some former exhibitions. The vegetable productions were very fine, but in quantity below those of the three or four preceding fairs. The exhibition of manufactured articles and mechanical implements, particularly the latter, exceeded those of any former year.

At 2 o'clock P. M., of the second day (14th) the annual address was delivered by Wm. H. Romeyn, Esq.

Officers for 1855.—President, Joseph Arnold; Vice-Presidents, R. Hardenburgh, Peter Crispell, jr., W. H. Trumpbour, and Philip Hoornbeck; Recording Secretary, S. S. Hommel; Corresponding Secretary, Wm. Cockburn; Treasurer, R. A. Chipp; Executive Committee, Peter H. Brink, C. M. Van Leuven, John Crispell, Ebenezer Lounsbury, Elias Depuy, A. B. Preston, Edmund Bruyn, D. L. Bernard, Jacob Elting, John Griffiths, F. F. Tillson, Wm. Soper, Clinton Hasbrouck, E. Sherrill, Harmon Reynolds, Abram De Witt, Chas. Davis, Abram D. De Witt.

S. S. HOMMEL, *Recording Secretary.*

CROPS. FROM DR. P. CRISPELL, JR.

B. P. JOHNSON, Esq.:

Dear Sir—Your circular of the 23d instant has been received, and in answer, I will give you the average, as near as possible, the season having been very unfavorable for the growth of crops generally.

Wheat.—The average of wheat will not much exceed, if any, five bushels per acre, the white wheat sowed being almost a total failure. One of my neighbors having his prejudices against Mediterranean wheat, has sowed all, heretofore of the white variety, and his yield this year is half a bushel from a hundred sheaves,

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it having been almost entirely destroyed by the wheat midge. The Mediterranean variety has been also very much affected by the midge, but does yield about half of its usual crop. The straw of wheat is rather less than usual.

Indian Corn will be about half a crop, which is an average of about from 15 to 20 bu. per acre. Crop light, in consequence of the want of rain.

Oats are rather more than half a crop, and mine grew 40 bush. to the acre.

Barley.—Very little raised.

Rye is a very good crop, except very late sowing, which has been affected by the midge almost as bad as the wheat; the average may be about from 16 to 18 per acre.

Buckwheat is almost a total failure; its average will not exceed five bushels to the acre; many fields are not cut at all, for want of length of straw to cut.

Hay has been nearly a full crop; its average will exceed one ton to the acre, and may be one and a half.

Potatoes are better than was expected; those that had not been entirely dried up before the rain have given a good crop, o that the potato crop may be considered about a full half crop, many pieces yielding nothing comparatively; the average may be between 50 and 70 per acre.

Peas and Beans.—Not many raised except in gardens.

Flax.—Not much raised; but that which has been grown is very good.

Fruit.—The crop of fruit, considering the drouth, has been very good indeed.

The diminution of all crops, by drouth, has been full, if not more than one-half.

The wheat crop has been injured by the wheat midge, as you will see by the statement above, at least two-thirds of the crop.

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There are not a sufficient quantity of acres of drained lands in the county to ascertain the difference between drained and undrained.

The state of farming, generally, is improving; many of the farmers are buying fertilizers, which they were not in the habit of doing until lately.

Yours respectfully,

PETER CRISPELL, JR.

WASHINGTON.

The fair of the Washington County Agricultural Society was held on the 20th and 21st days of September, at North White Creek. The severe drouth of the past season was manifest at our exhibition; yet, with this severe drawback, our fair evinced that the interest is by no means subsiding, or even lagging.

In stock, the show of horses was larger than in any other department. Our county is giving much attention to this branch of agriculture, and many fine horses are raised and disposed of at fair prices. The breeds are Morgan, Black Hawk, and Hamiltonian. The show of cattle was not as good as we have had in former years, but those exhibited were of decided merit. The ladies' department was as usual, well represented. A very fine show of garden vegetables was on exhibition.

In the afternoon of the second day, an excellent address was delivered by the president, Hon. Le Roy Mowry.

Our winter exhibition of grain, seeds, and root crops, was not large, but the samples were very fine. The first premium for winter wheat was for 20½ bushels per acre; for spring wheat, 20 bushels and 14 quarts per acre. First premium on corn was for 73 bushels per acre. Premiums on the above crops were all awarded to Dr. A. F. Cramer, of Granville. Premiums on oats, ruta bagas, English turnips, timothy seed, &c., were awarded, but we are unable to give the product per acre.

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Officers for 1855.—President, Peter Hill, Jackson; Vice-Presidents, Dr. James Savage, Argyle; Harvey Brown, Hartford; Sam'l Crosby, White Creek; James Farr, Fort Ann; Henry Holmes, Greenwich; Recording Secretary, Dr. Oliver Cook, White Creek; Assistant Secretary, Asel Millard, Hartford; Coresponding Secretary, Rev. E. H. Newton, Jackson; Treasurer, Ahira Eldridge, White Creek; with an executive committee of two from each town.

JAMES S. McDONALD, *Secretary.*

WAYNE.

LYONS, *December* 31, 1854.

The previous history of the Wayne County Agricultural Society presents nothing extraordinary in the way of progress or improvement. Since its organization its action has been characterized by conservative measures, and its usefulness consequently impaired. Although possessed of perhaps more than an ordinary amount of intelligence, the farmers of this county have, until recently, steadily rejected "book farming," being content to do as their fathers did, and by their distrust of "new things" have neglected to acquire much practical and valuable agricultural knowledge, without which their vocation yields neither pleasure nor profit.

But a change has come over the spirit of their dreams, for dreaming indeed they were, and would have continued to dream, but for the protest of the exhausted soil against yielding its accustomed abundance without a corresponding return of its productive elements. A spirit of inquiry has been abroad, and the result is highly gratifying. A judicious system of under-draining, deep plowing, manuring, and a proper rotation of crops, has restored much exhausted soil to its virgin strength and productiveness; the introduction of improved farm implements has greatly reduced the labor and expense of cultivation, and the introduction and improvement of all kinds of farm stock animals have rendered the

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pursuit of this branch of husbandry pleasant and profitable. Agriculture is now studied as a science, and its votaries are rapidly storing their minds with its facts and principles, and their pockets by their practical application.

During the present year the success of this society has been highly progressive. The annual fair and cattle show was held at Lyons on the 26th and 27th days of September. The weather was fair, but oppressively warm, preventing many from attending with their stock for exhibition; notwithstanding which, the show exceeded everything of the kind ever held in the county. The grounds were spacious and well provided with shade and water for the comfort of stock, the show of which was far superior to any previous exhibition. Messrs. E. N. Thomas, J. W. Collins, and others, exhibited very fine specimens of Devon cattle, while the native or grade cattle on exhibition were numerous and respectable. The show of horses was good, and indicated a marked improvement in this kind of farm stock. Van Slyck & Hale, of Lyons, exhibited the celebrated imported Suffolk boar "Prince," which was admired by thousands of visitors present. Messrs Malona and Louverhil, each exhibited fine specimens of the Suffolk breed.

The display of sheep, both fine and long wooled, was creditable to the exhibitors and to the county. Manufactured articles and implements were not wanting in numbers or quality.

Floral hall was, however, the center of attraction and interest. It was upon the grounds beneath a spacious tent, and contained fruits, vegetables, domestic manufactures, flowers, and fancy articles, not the least of which, in reference to numbers and beauty, were the fair daughters of Wayne. The fruits were such as Wayne county only can produce in abundance.

The attendance was large, estimated at 15,000; the number of entries was nearly 700; the amount of funds received was over $600.00; which will pay the expenses of the society, the premiums awarded, and leave a balance in the treasury.

These annual fairs, when properly conducted, exert a highly moral and social influence upon the people. Meeting from all

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parts of the county, they exchange civilities and opinions, acquiring much practical information and extending their acquaintance, social relations and influence. As long as fairs are productive of such results, they cannot fail to be useful, and should receive encouragement from all classes of society,

The annual meeting of the society was held at Lyons, on the 13th December, inst. The meeting was well attended and an unusual degree of interest was manifested.

The condition of the funds was as follows:

Balance on hand, last year,		$207 65
Memberships,		341 00
Admission to Floral Hall,		207 78
Subscriptions and other sources,		55·30
State appropriation, (not yet drawn),		126 00
		$937 73
Expenses of the society,	$235 69	
Premiums paid and due, about	250 00	
		485 69
Balance in treasury,		$452 04

A resolution was passed permanently locating the fairs at Lyons; and the preliminary steps were taken to purchase grounds and erect permanent and durable fixtures.

Strong resolutions were unanimously adopted in favor of the permanent location of the State fairs at the city of Syracuse.

Officers for 1855:—President, De Witt C. Van Slyck, of Lyons; Vice-presidents, Joseph Watson, E. N. Thomas, A. G. Percey, Stephen Tincklepaugh, T. G. Yeomans, Samuel E. Hudson, J. M. Wilson; Executive Committee, E. Ringer, Samuel J. Cole, David Griffith, Alfred Hale, D. Jennison; Corresponding Secretary, P. P. Bradish, of Lyons; Treasurer, Wm. D. Perrine, of Lyons; Recording Secretary, E. Ware Sylvester, of Lyons.

No applications were made for premiums on grain or field crops. The society adjourned to the second Wednesday, in January, 1855.

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In reply to the circular of the Corresp'g Secretary of the State Agricultural Society, I would state, that I have availed myself of all the sources of information in my power, but it is to be feared, that, in some cases, the answers cannot be considered as definite and reliable, though generally they approximate the truth.

1st. The chief product of this county is wheat.

2nd. The decrease this year is estimated at half a usual crop, and about one quarter or one third of the crop of last year. The cause of this diminution of product is mainly owing to its destruction by weevil, (wheat midge,) less breadth of land sown, and when lands were retentive of moisture and not properly underdrained, the crop was seriously injured by frost.

3rd. The number of acres in wheat this year is estimated, in round numbers, at 30,000 acres, (two years ago about 40,000 acres) and the quantity produced at 360,000 bushels; about half the entire crop is white wheat, of a superior quality, principally Soules variety; the other half is the Mediterranean variety, but of a fine quality.

4th. The other important products in their order are Indian corn, fruit, oats, potatoes, barley, rye and buckwheat. The amount of land in corn this year was greater than usual; the yield was about half or two-thirds of an average crop. The cause was the almost entire absence of rain, during the season of its growth. The amount raised is estimated at 500,000 bushels; the quality was good.

The breadth of the oat crop was greater than for several years; the yield was fair, and the amount is estimated at 500,000 bush.

Potatoes were below an average crop, having suffered in common with other summer crops by drouth; though they were generally unaffected by rot, the yield is estimated at 200,000 bsh.

Barley has proved a fair and highly profitable crop, on account of the very high price it bears; the yield is supposed to be about 80,000 bushels.

Fruit has been unusually fair and abundant. About 150,000 barrels of apples, choice varieties, have been marketed in this

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county alone, at from $1.00 to $1.37, per barrel. Peaches and quinces were abundant, and a large amount was sent to other markets. Fruit, in this county, is one of the most important staple productions.

5th. The high price of land has brought about more than an ordinary increase of the number of acres under tillage, but what such increase amounts to, I have no means of judging.

6th. The number of animal stock has undoubtedly increased, though to what extent I am not aware. There has been a marked improvement in all kinds of farm stock. The breeds of cattle most approved for work and market, are the Durhams, Devons, and their crosses, but native cattle are supposed to be preferable for the dairy. The most approved breeds of swine are the Suffolk, and its cross with native animals. The number of sheep has not been much augmented; the Merinos are considered best for wool, and the Cotswolds and Leicesters for mutton.

7th. There is a perceptible increase of attention to scientific cultivation.

8th. Drainage is beginning to be regarded with favor; more draining has been done this year than was ever before done in the county; its advantages, as far as observed, are obvious; very little land in the county is so situated as not to be benefited by a judicious system of drainage; its objects are to relieve the soil of a superabundance of moisture, early in the season, and during wet weather, and to enable it to retain more moisture during a season of drouth—a supposed contradiction in theory, but not so in practice.

9th. Farms are worth from $40 to $100 per acre; they have increased in value about 10 or 12 per cent during the year.

10th. The Erie canal and Central railroad passes through the county east and west; and the several villages, Palmyra, Newark, Lyons, and Clyde, upon its route, are the principal places of market; hence, no part of the county is very remote from a market town. The average expense of marketing for the whole county cannot, I think, exceed 4 per cent.

DE WITT C. VAN SLYCK, *President.*

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A. G. PERCEY, NEWARK. CROPS.

B. P. JOHNSON, Esq.:

Sir,—I received a circular from you, desiring information as to the relative average of the crops of different kinds for 1854, to which I reply as follows: wheat, 10 bush. per acre; indian corn, 20 bush.; oats, 25 bush.; barley, 20 bush.; rye, but little sown, 20 bush.; buckwheat, five bush., very badly injured by drouth; hay, one ton; potatoes, 75 bush.; peas and beans, 15 bush.; flax, do not know of an acre being sown; fruit, but few orchards are fully grafted, but increased attention is paid to the raising of fine fruit of all kinds for market. Thousands of Virgalieu pear trees have been set within a few years, for the purpose of supplying the eastern demand for this very choice fruit; the blight has affected them somewhat upon gravelly soils, and it is problematical whether they will succeed on such soils, to make it profitable for the outlay in time and money. The Bartlett pear, from its fine size and flavor, I should think would be of equal value for general cultivation. As regards its bearing, I have not sufficient experience to say whether it is as good as the Virgalieu.

What has been the diminution of crops by drouth? Indian corn has been considered two-thirds of a common crop, an over estimate, in my opinion; the kernel is small, and when thrashed, will be found to fall short of its usual bulk, as well as lighter weight. Oats and barley may be considered three-fourths of an ordinary yield. Wheat was injured by the drouth but very little, if any. The great enemy of the wheat in this county, was the wheat midge, commonly called the red weevil; many promising fields did not exceed six bushels per acre, and unless they are less destructive next season, much less breadth of land will be sown of this important grain than has been hitherto sown in this county. The Mediterranean variety has been more extensively used for seed this fall than ever before; it is earlier than any other variety; more hardy, consequently less liable to be injured either by winter or the fly, and it remains for time to disclose our ability to produce this kind of grain, in such perfection as to do away the prejudices arising from its being a red wheat.

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But little under-draining has been done in this county, but should suppose it would have a beneficial effect in seasons of drouth.

To the question, "What is the state of farming in your county?" I would answer healthy. No feverish excitement exists among the farmers of Wayne to produce large crops, by exorbitant outlays to procure guano, or Mapes' super-phosphate of lime, but pursuing the even tenor of their ways, by using a larger quantity of red clover and gypsum per acre, they are enabled to obtain a larger yield of both grain and grass, from year to year. It is also manifest in the improved condition of the tenements in which they dwell, the old ones being pulled down, and more beautiful ones substituted in their places.

To the last question, "Is it improving?" Most certainly; and this is evident from the fact, that better stock is sought after; a more general diffusion of better agricultural implements; and last, not least, a better and more earnest support of the agricultural press than at any former period.

S. A. COLLINS, SODUS.—CROPS.

1st. The wheat crop this season was uncommonly light; much of it was winter-killed by the freezing of the ground, and no snow to protect it. The weevil (wheat midge) also nearly destroyed a great many pieces in this county. I cannot give, of course, an accurate estimate, as I have no means to ascertain except my observation as I have been over the county. The crops will not probably vary much from 10 bushels per acre.

2. The corn crop in many portions of the county is very light, on account of the drouth, and will not probably average over 25 bushels per acre; ours goes from 45 to 50 per acre—13 acres of it.

3. Oats are a fair crop, though affected by the drouth; I think 30 bushels per acre.

4. Barley is a very good crop this season; 20 bushels per acre average.

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5. Rye, there is but little raised here; I think it will average 10 bushels per acre. Some pieces yield 20 or 25.

6. Buckwheat not as good as common, dry weather the cause, but there was considerable breadth of land sown with it in this county. Seed sold as high as $3 per bushel.

7. Hay was generally rather light, the weather being too dry for it. I have put the average at 1 ton; some pieces cut 2 to 3 tons per acre.

8. Potatoes are a better crop than was anticipated, and will average from 75 to 100 bushels per acre.

9. Peas were a fair crop—15 bushels per acre. Beans not; but few raised in the county; rather light; will not exceed 10 bushels to the acre on an average.

10. But very little flax raised with us.

11. Fruit is one of the prominent articles produced in our county. We probably equal or exceed any county in the State in fruits. We raise all kinds, peaches, pears, apples, quinces, cherries, plums, apricots, &c. Peaches were very plenty this season; apples a good crop; I cannot tell the amount per acre, but there will be many thousand barrels sent from our county to market this season, and immense quantities of dried fruit also.

12. Diminution by drouth generally calculated to be as much as 30 per cent, perhaps more.

13. To what extent has the wheat crop been injured by the wheat fly? I may say at least one-half; some pieces entirely destroyed, so that they did not yield to exceed 3 bushels per acre. The Mediterranean wheat escaped in a great measure.

14. I think drained lands have been less affected than undrained lands in these parts, though but few have drained to any extent as yet. They are beginning to wake to the subject.

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15. The State of farming in our county is good. We have many scientific farmers among us.

16. The system of farming is constantly improving in our county, and we look forward to the day—not far distant—when we cannot be excelled in farming in the State.

I have given you the answers to the several questions as nearly accurate as I can ascertain. It will in some instances vary from the true statements if they were ascertained properly, but not much.

S. A. COLLINS.

WESTCHESTER.

The undersigned President of the Society of Agriculture and Horticulture of Westchester county, New-York, in compliance with the statutes respectfully reports,

On the 21st and 22d of September, 1854, the Society held their tenth annual fair at Whiteplains. Premiums, amounting in the aggregate, including books and diplomas, to about $1,000, had been offered by the Society.

The display of vegetables and field crops was not as good as usual, owing in great measure to the drouth and unfavorableness of the preceding season; fruit also deficient from the same cause. Horses presented about the usual appearance. Neat cattle, sheep and swine not so numerous as on some former occasions, though some very good specimens were upon the ground. A fair variety of poultry was on exhibition, and agricultural implements were somewhat more numerous than at former fairs, but far short of what might be desirable. A trial of plows, and plowing and spading matches took place on the last day.

The proximity of the State fair, only a few weeks from the time of ours, and within a short distance, probably lessened interest, but, notwithstanding, the attendance was quite as large as on any former occasion, and if our exhibition fell short of former years, ample amends were found in the public speaking. Ad-

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dresses were made on the first day by Edward Wells, Esq., of Peekskill, and Robert Cochran, Esq., of Whiteplains, and on the second day by Dr. A. J. Prime, of Whiteplains, Hon. A. B. Conger, of Rockland county, and Orange Judd, Esq , of New-York, to all of which the most earnest attention was given by large audiences. A disposition to keep up the attendance on these annual reunions of our agricultural fairs was quite manifest, and nothing seems wanting but good management on the part of the Society, in presenting good exhibitions and instructive and interesting public speaking, to render them highly useful.

A. F. DICKINSON, *President.*

KATONA, WESTCHESTER CO., N. Y.,
January, 1, 1855.

TRIAL OF MOWING MACHINES.

The Westchester County Agricultural Society invited the owners of mowing machines to a trial on the 15th of June; we were present on invitation from the society. The trial was had on the farms of A. F. Dickinson, president of the society, and of the Hon. Judge Jay, adjoining, near Bedford. There was a very large attendance of farmers to witness the trial, estimated at from 300 to 500.

The occasion was one of great interest, and the farmers present were much benefited by the opportunity afforded them to examine and witness the trial of so many excellent machines. The feasibility of mowers, and their adaptation to the wants of the farmer, were most satisfactorily demonstrated.

Report of the commitee.—A special meeting of the Society of Agriculture and Horticulture of Westchester county, was held pursuant to a call of the president, A. F. Dickinson, at his place of residence, in the town of Bedford, on Friday, the 15th day of June, 1855, at 12 o'clock M., for the trial of mowing machines. The meeting was called to order by the president. The secretary being absent, S. G. Howe, of Lewisboro, was appointed secretary pro tem. On motion, the following persons were appointed to act as judges.

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R. M. Underhill, of Yorktown; Stephen Barnes, of Northcastle; Jeremiah Howe, of Lewisboro; Samuel Teed, of Somers; Henry Wood, of Bedford. It was then

Resolved, That the $30 which was appropriated by the Society to be used on this occasion be distributed by the judges as they consider equitable and proper.

Resolved, That the judges be instructed to give such publicity to the proceedings of the trial as in their judgment shall best promote the interests of the exhibitors and farmers.

Resolved, That we adjourn to the call of the president.

The following machines were entered for trial: Ketchum's machine, manufactured by Howard & Co., of Buffalo, New-York. Russell's machine, manufactured by R. H. Pease, of Albany, New-York. Forbush's machine, sold by Griffin & Brothers, of New-York city. Manny's mower, with Adriance's improvement, manufactured at Worcester, Mass. Manny's mower, sold by L. C. Ball, of Hoosick Falls, New-York. Hallenbeck's machine, manufactured at Albany, New-York. Allen's machine, of New-York city. Ketchum's machine, manufactured by T. & S. Hull, of Poughkeepsie, New-York. Ketchum's one-horse mower, manufactured by Ruggles, Nourse & Mason, Mass., sold by R. L. Allen, of New-York city.

The trial of the different mowers commenced at a few minutes past one o'clock, and after the different machines had each been driven twice across the field by the same driver and team, B. P. Johnson, Esq., Secretary of New-York State Agricultural Society delivered an able address to the farmers, appropriate to the occasion, after which the trial was continued through the afternoon, and concluded on Saturday the 16th.

The committee reported that they were very greatly pleased with the performance of every machine exhibited, and can confidently say that they believe any one of them would give satisfaction to the farmers of the country. But as they all possess peculiar excellencies we will specify them under the following heads:

1st. Operation of the machines on fair ground, driven at first by the same driver and team, and afterwards by the exhibitors themselves, or under their direction: On this point your com-

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mittee find that the machines of Ketcham, Hallenbeck, Manny and Allen, are of equal excellence.

2d. The lowest and smoothest cut of each machine: Your committee are of opinion that upon this point there is no marked difference in the four machines just mentioned.

3d. Trial on rough uncleared bottom: Your committee on this point give the preference to Allen's and Russell's machines.

4th. Evenness of grass, as left by the machine for curing: We find that the machines with the iron cutter bar have the preference in this respect.

5th. Freedom of knives from clogging: We are of opinion that the machines of Ketchum, Manny, Hallenbeck and Russell on account of the finger caps not reaching back to the finger board, are least likely to clog.

6th. Amount of power required to perform a given amount of work: Your committee think there is but little difference in this respect between the machines of Hallenbeck, Manny, and Allen.

7th. Facilities of transportation from one field to another, and for escaping obstructions in the field: We believe that Manny's machine has advantages over any other in this respect.

8th. Durability and simplicity of construction: We believe Ketchum's and Allen's the most durable, and Hallenbeck's the most simply constructed machines exhibited.

Your committee in this report have included under the term of Ketchum's machines, that of Hull, and the one horse mower manufactured by Ruggles, Nourse & Mason. And also where Manny's is spoken of they mean to include the machine manufactured by Adriance, of Worcester, Mass., and by Ball, of Hoosic Falls, N. Y. The machine brought upon the ground by Mr. Griffing (Forbush's patent,) is not included in this report, as the proprietors, from some cause, were not satisfied that it had a fair trial, not being able to have it in proper order.

R. MOTT UNDERHILL,
JEREMIAH HOWE,
SAMUEL TEED,
STEPHEN BARNES,
HENRY WOOD, *Committee.*

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WYOMING

The Wyoming County Agricultural Society, and agricultural interests generally, are in flourishing condition. Our fair for 1854, was largely attended, and our finances are improving.

The domestic department of our late show, was conceded to be an improvement upon any of its predecessors; for which credit is mainly due to the ladies of the county, whose presence was the most attractive feature, and whose paintings, drawings, artificial flowers, embroidery, needle and kniting work, linen and woolen cloth, quilts, butter, cheese, and (to top the climax) bread, excelled in excellence, as they were abundant in supply and variety. Messrs. Buxton, of Warsaw, large manufacturers of carriages and wagons for the home and western markets, presented articles in their line; but the mechanics of the county generally are remiss in their duties to the public in this regard. Messrs. Davidson, of Warsaw, exhibited their wheel horse rake, an article perfectly indispensable to wheat-growers, as it is greatly superior to the ordinary revolving rake for gleaning stubbles, making an additional saving of at least one or two dollars worth of wheat to the acre. Fine musical instruments were presented by Mr. Clark, of Warsaw, a dealer in those articles; and they were played upon during the day by eminent musicians, to the great delight of a numerous auditory. Some portraits, by Mr. P. Stanton, of Le Roy, an artist of much merit, and a native of this county, were exhibited. It is expected that he will furnish us next year, with some of his more celebrated and elaborate paintings. Prof. Wright, an able geologist, and principal of the Warsaw academy, presented some very rare geological specimens, and was himself present; he promises a more complete collection next year.

We intend to make our fair an occasion of interest and profit to all men, practical and scientific. We mean to introduce even the ignorant and poor, to models of excellence that may develop and direct their powers. Here let the people come to exchange friendly greetings; to compare views and practice; to become acquainted with new inventions, and to decide upon their relative merits.

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Our county and State fairs may subserve the purposes of business, by a general understanding that animals and articles for sale, shall have a place assigned to them, where buyers and sellers may meet each other; we shall probably introduce this feature.

Perhaps the greatest evil we have to contend with, is the backwardness of people in presenting articles for exhibition, they want to be sure of a premium before they consent to compete for it. If each one would do a little, much would be accomplished. A person is very unfortunate who cannot, from the multitude of things, find something that would not disgrace him. If the matter should be duly brought before the undersigned, who is a justice of the peace, in a rural district, he would decide it unconstitutional for a person to accept the benefit of a show, to which he refused "aid and comfort."

Wyoming county is elevated, and somewhat broken; it borders on the Genesee river on one side. Several important streams, running in different directions, originate here, viz: Buffalo creek, running westerly to Lake Erie, and forming at its mouth, Buffalo city harbor; Tonawanda creek, which empties into Niagara river, with valuable mill privileges at Attica, Batavia, and other places; Allen's creek, running north, through the finest part of the Genesee country, to Genesee river, near Rochester, lined with flouring mills from its its source to its mouth; East and West Coy, also celebrated for their mill privileges; Cattaraugus creek, running southwest to Lake Erie, and many other streams.

The eastern part of the county is excellent for wheat, which is our chief product; while the west is excellent for grass, oats, potatoes, &c. Perhaps no portion of the State of equal extent, produces more wool than the northeast section of Wyoming co. Wool is probably the second article in importance as an article of commerce, though very large quantities of butter and cheese are produced, the dairies of this county having a wide celebrity. Our cattle are principally grades, with several fine herds of Durhams, and some Devons. We produce many very fine steers and oxen, but our wealthy neighbors of Livingston county, are apt to buy them and run off with all the glory. Our horses are of mixed

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breeds, including some Morgans, but the science of breeding has not received the attention it deserves, crosses are not always judiciously made. Long-wooled sheep have lately been introduced, but the Spanish Merino is most generally preferred; there are however, some fine French sheep. The cultivation of fruit does not receive the attention it deserves, and our farmers by neglecting their gardens, forego many of life's enjoyments. Our produce is marketed upon the Buffalo and New-York City railroad, and on the Genesee Valley canal; the former passes near the center of the county, and the latter is reached by going on an average ten or twelve miles.

HUGH T. BROOKS, *President.*

Officers for 1855.—Hugh T. Brooks, President; John A. McElwain, Treasurer; L. W. Smith, Recording Secretary; William Bristol, Corresponding Secretary.

ADDRESS DELIVERED AT THE ANNUAL MEETING OF THE WYOMING COUNTY AGRICULTURAL SOCIETY, BY THE PRESIDENT, HUGH T. BROOKS.

A venerable and respected citizen, I think it was Mister Partington, is said to have sent his smart boys to college, and prepared them for the "learned professions;" but after mature deliberation he declared the youngest fit for nothing but a farmer! At last the idea is getting about that the old gentleman made a mistake, and I now give it as my deliberate opinion that it requires more intellect and more learning to raise a calf, and do it right, than to fill a professor's chair in your best college. The university man, like a city shop, deals in but one article; if he expounds Greek he ignores conic sections; if he names the stars he isn't expected to know much about beans. A herdsman requires a wide range of knowledge. Historically, he should go back to the flood, and follow the animals down through successive generations, carefully noting their instinct, habits, and manner of living, and so avoid subjecting them to unnatural and artificial modes of life. Physiologically, he should be familiar with their structure, from the frame of bones to the small ligaments and the minute blood vessels—well versed in the office and

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use of each. He can then judge what particular form and characteristics are required for particular emergencies, and can tell in advance whether an animal will be best suited to the yoke, the slaughter-house, or the dairy, and is prepared to give it the peculiar discipline and development suited to its destiny. He should be a doctor—not a quack—skilled in all antidotes, and afraid to use them; a botanist, zealous as Audubon, and more learned than Linnæus; a geologist and a chemist, that he may know what circumstances favor the growth and perfection of plants, and what varieties are best adapted to his purpose.

Without enumerating all the sciences which, as the itinerant singer said of his songs, are too tedious to mention, I will merely add, that the science of breeding, with its crosses to perpetuate good qualities and extirpate bad ones, its nice adjustment of warmth, light, air, and exercise, to the creature's necessities, its skilful combination of food (more or less concentrated) to please the appetite and minister to specific wants, involves more difficult and weighty questions than those with which senators and judges usually have to do.

May I not ask, what in the catalogue of human knowledge can a practical man afford to do without; and "speaking of calves," demand who is equal to the task of rearing them?

Gentlemen, give us your smartest boys for farmers, and we will find them full employ. It don't matter much what you put into the other professions. I would like a cute doctor, to be sure, but a keen lawyer is more likely to prevent justice than to promote it, and a "talented minister" is in great danger of being vain of his gifts and careless of his graces.

The cultivation of the earth should enlist more men, more minds, and more means. A destitution of agricultural products, to the extent of actual or impending famine, is among the lighter evils which follow in the path of man's departure from his original employment. "And the Lord God took the man and put him into the garden of Eden to dress it and to keep it." Observe, it was a garden, which implies a high state of cultivation. There

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were no thousand acre lots, without a shrub or a tree; no cornfields big enough for a township; no agricultural desolations. "And out of the ground made the Lord God to grow every tree that is pleasant to the sight and good for food." It was picturesque, unique, attractive, elevating, and refining. Here we see man in his normal state. Here we see him under those circumstances that best favor his development. When poets and prophets would represent man in a high state of felicity, they draw a picture of rural life; if in marked contrast with the dim and dull reality, it is our fault, not theirs; we have made it what it is, they have described it as it should be.

As farmers, it should be our ambition to make farming attractive, and relieve it from the odium and embarrassment which ignorance and indiscretion have heaped upon it. Only a comparatively small number are needed outside of agricultural and horticultural pursuits. Some trades, occupations and professions are of doubtful value, while others are accessories of folly and vice. If those who have failed in their efforts to get wealth or distinction by other means, or, what is often worse, succeeded, could be induced to turn their attention to farming, the result would be most happy to them and to "the rest of mankind." Of farming, there need be no end; it is legitimate, indispensable, and expansive as the world.

The ghost of "over production" need not frighten you. The business will never be over done, if it be "well done." Adopting Adam's first farm as a model, we shall find something else to do besides raising corn, potatoes and wheat. The present race of farmers ought to be relieved from the labor of producing everything the world lives on. An accession to their numbers will enable them to cultivate their taste for rural embellishment, and develop the peculiar beauties of farming. This being done, men will not need to be persuaded to become farmers; they cannot, by reason of its attractiveness, be kept out of it. In some way we must cultivate our taste for the beautiful. Most unfortunately our beauties now savor too much of commerce and manufactories. Our windows look out upon ragged fences, unsightly

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heaps of rubbish and naked fallows, which load the poet's "gentle zephyrs" with dust. Under the circumstances "nature will out," and the good housewife, by elegant furniture and costly equipage, gratifies her "taste for the beautiful." Shades of the poets! it is badly done. The soul yearns for nature, and turns away sick from the elaborate architecture and princely equipage. I am in earnest. We support in manufacturing towns, and in the channels of commerce, multitudes who do us no good; put them on farms, and devote the agricultural labor which now feeds and clothes them to fences, fruits, flowers, shrubbery and their careful cultivation.

Though a "free-trade" man, I lay down as a general rule, the nearer home we get our supplies, the better. Commerce and traffic, expensive at best, are full of snares and temptations, and must be set down in general as of demoralizing tendency—witness lies—I hope I may venture to disapprove of them—peculations, adulterations, small frauds and big frauds without number. True, there is no use of recommending home-spun; when a girl at a Lowell factory can weave 1,180 yards of factory cloth in a week, she will not go home and spend the same time on 30, nor should she; the domestic loom, like the piano which has so generally superceded it, is a costly piece of furniture, suited only to the rich and people of elegant leisure. But "the style of beauty" I am recommending is very simple and chaste, and admits of many substitutions of domestic for foreign furniture and fabrics. Where we fail of producing, we can often succeed in retrenching, to the evident improvement of our health, manners, morals, and estate.

"All this is very well, but there is no use in talking about it." Yes there is use of talking about it. What should be shall be! Reforms are generally effected by the force of good examples. Influences are at work in the direction I have named. Whoever builds a neat cottage, plants a tree, or cultivates a flower has done something to revive among men a love of those pure and pastoral pleasures which must be made to supercede the extravagance and dissipation of fashionable life. Let me be distinctly understood. Whoever makes farming attractive, so as to recommend it to talented and aspiring young men that are now decoyed

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into treacherous and deceitful paths, is a public benefactor. All who exhibit a sound judgment, and a refined taste in their home arrangements; all who at a moderate cost, beautify, adorn, and make comfortable and convenient the house they live in, and the grounds they occupy, may take their seats among patriots and sages, conscious that the good they do will live after them, and the stimulus of their example be widely felt.

There are many subjects to which I could wish to call your attention, but I am admonished that I must be brief. When science and intelligence shall have done for us what they ought to do, and what they will do, we shall be able to pursue our calling more systematically and more successfully than at present. We shall ascertain what particular productions are suited to our locality. This will require a minuteness of observation, and an accuracy of estimate to which, unfortunately, we are not much accustomed. We take cognizance of a total failure, and are tolerably sure when the bugs eat up our vines, or our calves "kick the bucket," that they don't pay—but if they make a faint show of life, and finally die in the natural way, we pass them over without inquiry to the "general fund." A farmer is not really considered unsuccessful, so long as he can pay his debts or get trusted; but whether his measure of success depends upon good and judicious husbandry, or upon hard and exhausting labor, excessive privations, or inherited wealth, his records do not always explain.

We should institute a series of careful experiments to determine the relative profit or loss on each article that we produce. In the absence of those careful estimates, I will say that wheat seems well adapted to this county, with some exceptions, and wheat is so pre-eminently valuable, that it may safely be said to remunerate the grower on all lands that with good management will produce 20 bushels to the acre. Clover is a necessary accompaniment, and should not be removed from the land, but turned under, at, or immediately before maturity, and be followed with wheat.

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Too much cannot be said in behalf of Indian Corn; as a "native American," it has a perfect right to be here. No crop seems to succeed so universally on this continent.

We have another mine of wealth scarcely opened. I refer to fruit and fruit growing. The cultivation of apples, particularly, will yet prove to be the strong point of American farming. What the root crop is to Great Britain, apples are to America. Our dry seasons, while they are greatly prejudicial to root husbandry, admit of a fine growth of fruit. I have seen statements which go to show that our good varieties of apples are superior to turnips in their nutritive qualities, and quite equal to potatoes and other popular roots. When I commenced raising Durham calves, I fed them on about the usual allowance of milk, and added, after a little, a moderate quantity of apples, which I continued through the winter. In the spring, a cattle buyer of extensive practice declared my calves the best he had seen. They owed their excellence to apples.

Though I had, perhaps, as much orcharding as any man in my town, I have just set out 1,000 additional trees, and at my earliest convenience I intend to double the dose. If apples will sell, say for 25 cents per bushel, they are more profitable for market than anything I can raise; and if they wont sell for as much as that, they afford cheaper and better nutriment for man and beast than we can get in any other way. I have never found anything in the way of domestic stock, but what will eat them, and if I should find such a reprobate, I would not keep it an hour. Some sort of succulent food is required by all animals, and apples in this country are just adapted to that necessity.

One thing more and I will close. If agricultural experience has demonstrated anything it is this: the labor employed on our farms should be greatly increased, whether we have reference to our individual profits or the general good. We are conscious that we ought to do many things, but "we have not time." What we leave undone, is precisely what would best reward the doing. When I used to talk temperance in the old-fashioned way, I told my hearers that it was the first glass that destroyed them; if they

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would refrain from the first glass, they never would become drunkards. Now I reverse the rule—it is the last that tells.

You may go through all the routine of raising a crop, but if, in the language of scripture, "one thing thou lackest," it may profit you nothing. Often, it is just the labor *that is not expended* that would pay. I am confident that in my own cornfields, and hay, and harvest field, it sometimes happens that a man could earn ten dollars a day, and I had better pay that sum than to do without the work.

I feel it my duty to call your attention to this subject at the present time, and recommend to you that in the several towns which you represent, you should take measures to bring out of the cities, and employ those who suffer for the employment which you can so well afford to give. Bear in mind that as farmers, important interests are consigned to your care, and strive in all things to do well.

YATES.

The annual fair of the Yates County Agricultural Society was held at Penn Yan, on Thursday and Friday, Sept. 14th and 15th. The attendance was unusually large, and the exhibition of stock of the various kinds, surpassed that of any previous fair, both in quality and quantity, clearly proving that progress and improvement is the order of the day with the farmers of Yates.

Not having at hand the reports of committees, I am unable to give in detail the number and different kinds of cattle, horses, sheep, and swine. Great improvement was apparent in working oxen, and some Herefords present excited great admiration. The matched, working, and trotting horses were greatly superior to any previous show. The mares and colts were present in unusual numbers, and very fine, showing that great interest is taken in this department.

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The show of sheep of different breeds was superior, especially the Merinos, and would not compare unfavorably with those generally seen at our State fairs.

Our swine have received great attention, and decided improvement is seen on every hand, and the friends of the society may feel justly proud that they have done something towards arousing a proper spirit of emulation, which must result in great and lasting good to our country.

The mechanics had on exhibition a fine display of agricultural implements, specimens of their handiwork, showing that they are true and earnest workers with the farmer, in promoting the great cause of agriculture.

Owing to the unparalleled drouth of the past season, the display of vegetables and fruits was not as large as usual. In apples, however, we had a very fine and creditable exhibition.

The ladies in their department contributed largely to the success and pleasure of the fair by their co-operation and good works in decorating the walls of our building with the substantial and tasteful works of their own hands, verifying the truth of the poet that

> "Eden itself was a wild,
> And man the hermit sighed
> Till woman smiled."

It is gratifying to the friends of the society to believe that a more general interest is taken in its prosperity than ever before, for all classes and conditions seem to vie with each other in effort to sustain this our annual farmers' festival.

In the afternoon of the second day, the annual address was delivered to a large assemblage by M. H. Lawrence, Esq , and a copy solicited for publication; after which the premiums were awarded, and then the multitude dispersed well pleased with this their annual holiday. During the past summer the society has purchased four acres of land near the village of Penn Yan, and surrounded it with a strong, substantial fence, eight feet high. In the center of the lot they have erected a building, seventy feet long by forty wide, and so arranged and finished as to be suitable

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to the wants of the fair. A convenient business office has also been erected at the entrance to the fair grounds.

Below will be found the financial condition of the society:

Expended.

To four acres of land,	$700 00
lumber, fencing, and building,	655 00
carpenter's bill,	312 97
painting bill,	47 38
bill of hardware,	110 57
grading lot, framing posts for fence,	110 25
incidental expenses,	223 64
premiums awarded,	319 00
	$2,478 81

Received.

By amount on hand of 1853,	$221 85
members, at $1 each,	350 00
subscription,	80 00
admittance at rate of one shilling each,	528 50
rent of ground,	45 00
cash from State,	61 00
	$1,286 35

Officers for 1855.—Nelson Thompson, President; Edwin R. Randall, Secretary; George N. Waggoner, Treasurer.

Respectfully yours,

NELSON THOMPSON, *President.*

CROPS.—FROM NELSON THOMPSON, PRESIDENT.

B. P. Johnson, Esq.:

In reply to your circular, asking for information on the subject of agriculture, I would answer as follows:

1st. Wheat is considered the chief product of our county.

2d. A decrease in quantity and quality, from last year's crop of perhaps one-third, and the crop of last year was much short of the average of preceding years.

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The cultivation of wheat has always been the favorite and leading crop with the farmers of Yates, and its partial failure for the last two years, has been a serious loss and great calamity to the county. Many are becoming discouraged on account of the ravages of the wheat midge, and think of turning their attention to other crops. On this point, allow me to give an extract from the address of M. H. Lawrence, at our county fair:

"There seems to be a natural tendency in man, to underrate the benefactions of Providence, and exaggerate the ills that flesh is heir to, and like the children of Israel, murmur against the decrees of Heaven. It is indeed true, that at no time in our history as farmers, have the seasons proved so unpropitious as the last two years, and more especially the present. Our winter wheat, owing to the winter and unfavorable spring, is sadly deficient. The spring crops, including grass and hay, have been almost an entire failure. But these discouraging facts should not dishearten the farmer, for similar adverse circumstances may not occur again in half a century to come.

"I have alluded to the fact, that the first wheat raised in Western New-York was in our county, by the Society of Friends, in 1789, some sixty-five years ago. I think from my own experience and observations, that this crop is better adapted to our soil than any other we cultivate. For many years we have raised it so easily, that we have become careless in its cultivation, still expecting good crops; some have, and others seriously talk of giving up its cultivation altogether, on account of the ravages of the wheat fly.

"Now, while not wishing to set myself up as teacher, I should advise against such course, and for one, would choose "to suffer present ills, than fly to those we know not of." Sow less spring grain in the mud, to harden and bake the soil, plow deeper, cultivate more thoroughly, and use all the manures you can get; sow early, that when the winter begins, your fields may have a warm rich mantle of green for a covering. This, in a great degree, will prevent the plants from winter killing, pushing forward an early and vigorous growth, and causing the berry to mature early; thus

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in most cases, I believe it will escape the ravages of the fly. I have seen good fields of wheat, where the ground and culture was good, and on that of an opposite character, an entire failure.

"From these facts then, let us take courage, and 'plow deep, while sluggards sleep,' that we may retain the laurels we have so long worn, of being one of the best wheat growing counties in the State."

4th. Owing to the protracted drouth of the last summer, all other crops such as corn, barley, oats, grass, potatoes, and other vegetables, have decreased in quantity full two-thirds from preceding years.

5th. The increase in acres cultivated, about one-third.

6th. A decrease of more than one-half in all animal stock, on account of pasture, and want of fodder for wintering. Some attention paid to the breeding of Durhams and Herefords, but native Americans most in favor for the dairy.

7th. An increase of scientific and intelligent farming.

8th. Drainage is receiving much attention, and always followed by advantages, too "numerous to mention."

9th. The value of farms have increased the last two years, owing to increased railroad facilities, and other local improvements.

10th. There are many places in the county where products are marketed, but the principal one is at Penn Yan.

Respectfully yours,

NELSON THOMPSON, *Pres't.*

AN ESSAY ON NOXIOUS WEEDS.—BY CHARLES LEE.

B. P. JOHNSON, ESQ.:

With an ardent desire to perform my duty as a member of our valuable society, in such a manner as shall result in the "greatest good to the greatest number" of our "progressive" and practical farmers, I have deemed it fit and prudent to give them my experience, in eradicating from the soil the various "noxious weeds," that are so rapidly and so fearfully making an inroad into our fair dominion.

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The good book informs us, that by Divine appointment, "the heavens and the earth were finished, and there was not a man to till the ground," it therefore pleased the Great Architect to create man, and place him in the midst of the garden to dress and cultivate the same; but by reason of his disobedience, he was driven from the enjoyment of its purity, its innocence and peace, into a wide world of toil, perplexity, and death; and the soil on which he trod, for his sake and his posterity, cursed with "thorns and thistles," and all manner of vile and "noxious weeds," which in the wisdom of that All-wise Being was designed to remind us erring creatures of our depravity by nature, our dependence, and our mortality.

Through the negligence and indifference of farmers, particularly in western New-York, in their eagerness after money, acres and affluence, have, in a great measure, lost sight of the maxims of the invaluable Delafield, that "no farmer can or should expect to succeed without *intelligence, cleanliness and system.*"

Our cultivated fields, wood lands, private and public roads, have become to an alarming extent so completely infested with thistles and weeds of every kind, that it would require no great stretch of the imagination to look forward to some not far distant day when we shall be compelled to surrender whatever claim we may have to the soil to their quiet and peaceable possession. Although our claim in some sense may seem to be disputed, by a rigid and vigilant course, ever on the look-out, with the means brought to our aid through the medium of science, observation and experience, we may in the end hope to come off victorious.

It would be folly in me to attempt, in the short space of an essay, to speak minutely of all, or even a tenth part, of these *pests* that it seems we, as a profession, are doomed to contend with, but will content myself with but those which I deem of the greatest importance.

And first in importance of those most obstinate and vile, in my opinion, is the *Canada thistle.* The history of this plant, as far as I am able to learn, is, that it was first discovered in America

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on the banks of the St. Lawrence more than two centuries ago, and was taken to Paris and there transplanted in the government gardens, and cultivated by eminent botanists as a rare curiosity, and from them into most of the botanical gardens of Europe. Botanists, as well as farmers and men of science, soon learned that from its spread over the most of Europe and America, that the only *curiosity* about the plant is, that when once firmly rooted, and foot-hold fairly obtained, it is next to an impossibility to eradicate it entirely from the soil, or even for a time to stay its progress.

At the time I purchased the farm on which I now reside, I found in most of the fields (many of which have been under cultivation more than half a century) this plant in small and scattering patches. I deemed them of but little importance, supposing that a system of occasionally mowing, cultivating the fields with root crops and corn, their farther spreading, and perhaps destruction, might be effected; but not so; it being a perennial plant, and having two ways of propagating and multiplying its kind—both by seed and by its roots—I found it much like the fortresses of Sebastopol—"not so easily taken."—The patches that at first seemed but small had in a few years greatly extended their boundaries, together with new and additional patches to an alarming extent had made their appearance, and threatened to overrun my entire possession. Being by this time somewhat aroused to the importance of this subject, I began to cast about for a more effectual weapon.

Knowing the fact that the roots of trees, plants and shrubs, whether annual, biennial or perennial could not, in the nature of things, long exist when deprived of their *breathing organs*, (the leaves,) and that all vegetation must of necessity cease when deprived of the genial influences of light and air, I adopted the plan of passing over my entire farm at least once in every month, cutting up and taking vengeance on every thing of a vile nature in my path, or that had presumed to rear its head above the soil.

With the large patches I pursued an entire different course. My plan is to seed with clover in the spring the fields in which

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these patches exist. On removing the crop, whether of winter wheat or spring grain, I mark the location of the "infected district," late in the fall I plow up these patches deep and thorough, and leave them exposed through the winter to the action of the frosts, which not only has a salutary effect upon the roots so exposed, but more effectually prepares the ground and fits it for after cultivation, which consists of the following treatment: as soon as the ground is thoroughly settled in the spring, and the sun attains a sufficient altitude to have a destructive effect upon the exposed roots and fibers, I again pass the plow through these patches, taking pains to cut the furrow-slice narrow, and if possible bring every portion of the plow soil to the surface, and thus expose to the killing effects of the rays of the sun every thing that has a tendency to vegetate. This process I repeat at least once in two or three weeks, or so often as I find the ground dry, (for if *wet* the more you plow the more thrifty your plants will grow,) or the least indications of life or vegetation. This process is continued during the entire summer, or the season of hot and dry weather, and about the first of October I sow the ground thus cultivated to rye and grass, or clover seed, which, from the effects of the fine tilth and warm rains soon vegetates; its growth is rapid, and in a few days will furnish nearly as much pasture for cattle as the surrounding field.

The result of all this is, that your thistles are disposed of, the soil none the worse for the cultivation, your mind is at ease, and one *claimant* in your disputed title effectually disposed of.

The next in point of rank and importance I will consider the plant well known to the farmers of western New-York as the "pigeon weed," or "red root."

A minute description of this weed I deem quite unimportant at this time, as its history and nature and growth are pretty generally known and understood. Much has been written upon this plant, and many experiments made with but little or no satisfaction.

Its seed is of a dark brown color, the size of a mustard seed, and in shape resembling the acorn, quite rough and very hard,

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and will remain for years unaffected when permitted to lie upon the surface of the ground, or buried sufficiently deep to exclude it entirely from the action of air.

When deposited near the surface of the ground it vegetates quite readily, and generally makes its appearance on the removal or putting in of our wheat crop about the first of October, and has the appearance or quite resembles the clover before it sets its third leaf.

In the spring it grows quite rapidly, and in proportion to the richness of the soil, sets off from six to twelve branches at or near the ground. About the first of May it shows a small, white blossom, and what is quite singular and peculiar to this plant, is that in less than four weeks it perfects a seed, the plant continuing to grow, to bloom, and perfect its seeds until harvest, at which time the top may be in blossom, and all below quite to the ground, it having ripened and cast its fruit, or holding on to the same with so slight a tenure that on the slightest shake or the least movement of the plant, the seeds will rattle to the ground in a perfect shower.

Farmers, a few years since, when looking for a remedy, supposed that by seeding down with clover for a term of years, the seed would rot, and thus they would get rid of the evil the same as any other vegetable nuisance. But not so; for when the soil is moved by fallowing or otherwise, for winter or spring crops, the pest is still there in a multiplied ratio of ten fold. Others have hoped to conquer by plucking up the roots; others by mowing off the top with the wheat, before the latter becomes too far advanced; all of which have been abandoned as futile and useless.

The most successful plan pursued by me, has been that of turning over deep with plow, draging and thoroughly draining early in the fall; crossing and planting to corn in the spring. Plow again in the fall as before; open water courses and sow with barley the spring following, and in the fall with wheat, seeding with clover the next spring.

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Thus, the fertility of the soil will be kept up and not impoverished; a profitable and correct rotation of crops will have been pursued, and the vile weed more effectually disposed of than in any other way.

This process, I am confident from practical observation, will come as near to a perfect destruction and extermination as it is possible to arrive at in the length of time specified, and without making an unproductive waste or desert of your lands.

I could speak of other "noxious weeds," equally vile and perplexing to the farmer—such as the wild mustard, Johnswort, the daisy, quack or "knot grass," as also many that infest our gardens, but will content myself by recommending, in conclusion, the above directions in the destruction of the thistle and red root, to be applied, as a general thing, to those last mentioned.

For those that propogate their class or species, both by *seed and root*, a thorough extermination will be obtained by the "thistle remedy," as above advocated; and those that multiply by seed only, the remedy I have given for the destruction of the red root or "pigeon weed."

Farmers, as a general thing, are too neglectful of their "small things," which in the end assume an aggregrate greatly to their loss in dollars and cents, and much to their perplexity and inconvenience through life; and those who are so destitute of moral obligation to their neighbors and to posterity as not to take heed from the words of wisdom and the force of example, why should we look in vain upon our statute books for an enactment declaring these, in the eyes of the law, what they truly are in public opinion, trespassers, vagrants, and criminals.

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AMERICAN INSTITUTE.

Thirteenth Annual Report of the Trustees of the American Institute.

The Trustees of the American Institute herewith present their thirteenth annual report.

The active circle of the Institute having, during the past year, being somewhat circumscribed by the suspension of its annual fair, the subjects of this report may be comprised within a brief space. It will be proper to state here succinctly the causes which led to an interregnum in our annual fairs. This is the more necessary, because the subject is not, in some quarters, referred to its proper cause. There are some who suppose that the American Institute suspended its annual fair because of the Crystal Palace. This is a great mistake. If the Institute would not forego its annual fair when the Crystal Palace was in the noontide of its glory, it is not to be supposed that it would do so when the Crystal Palace had lost all the prestige which greeted its opening.

To do away any misapprehension which may still exist on this subject, it may be well to state the reasons which governed the Institute in suspending its fair for 1854. At its annual meeting in February, the New York State Agricultural Society selected New-York City for holding its next annual fair. It needed but little reflection to convince all parties that two great fairs could not be held in this city at the same time, without materially detracting from the interest of both. But who should give way? The State Society took the initiative, and prior to our annual elec-

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tion appointed a committee to wait upon the Institute. The latter appointed a committee of conference, and an arrangement was effected, that the Institute would suspend its own fair and unite with the State Society. This arrangement was carried out in good faith by both parties, the Institute, however, not deriving therefrom any pecuniary advantage whatever; on the contrary, it sacrificed the large income which it annually receives from its fairs, and upon which it mainly relies for conducting its operations. It need scarcely be mentioned, that a custom has obtained, that wherever the State Society holds its fair, the local societies of the place unite with it; and thus not only the Institute, but also the New-York Horticultural Society co-operated with the State Society at its last fair. It may be mentioned here, that the president of the Crystal Palace Association having expressed a desire that the Institute should hold its fair at the Crystal Palace, a committee of conference was appointed, but nothing was effected.

But, though the operations of the Institute have been somewhat circumscribed, its usefulness has not been impaired. As far as possible, it has been attempted to carry out faithfully all the great objects for which the Institute was founded. The Farmers' Club has been instrumental in diffusing a large amount of useful information on the various topics relating to agriculture and horticulture; and its meetings possess so much interest for the farmer and others, that it is now no unusual thing to see sixty and seventy persons present, many of them coming from a considerable distance in the country, not occasionally, but with considerable regularity. At these meetings, all the recent improvements and novelties (whether relating to culture, or the instruments by which it is effected) are made subjects of discussion, and their merits duly canvassed. The proceedings of the Farmers' Club for the past year, embracing a great variety of topics, afford pleasing evidence that it is gradually and surely enlarging the sphere of its usefulness, and doing a good work for the staple interest of our country. In addition to this, through the laborious and well directed exertions of its indefatigable secretary, the members of the Farmers' Club are kept well informed of the progress that is being made on the other side of the water.

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Increased attention has also been given to the mechanic arts and sciences. For the purpose of more directly stimulating these important subjects, a "Mechanic's Club" has been instituted, which, it is hoped, will be productive of much good. It is proposed that the "Mechanic's Club" shall bear the same relation to the arts and sciences that the Farmer's Club does to agriculture and horticulture. At its meetings should be found the best scientific and mechanical talent which our city affords, as well as the student and novice, and all whose studies or inclinations lead them to feel an interest in the development and advancement of American science and skill. We hope to be able hereafter to report some good results effected by the Mechanic's Club.

Our library has also been found an important aid in furthering the objects of the Institute. Well stored with standard works in all the departments of human learning, the student, the scholar, and the general reader, each finds here timely aid and assistance in his scientific or literary pursuits; and the number of volumes daily taken from the library, shows that these valuable helps in the attainment of knowledge are, to a very considerable extent, appreciated. The library now contains over 7,000 volumes. During the past year 244 volumes have been added, and among them some works of great value, such as Bayle's Historical and Critical Dictionary, 5 vols. folio, London, 1734; American Archives, by Peter Force, (4th and 5th series,) 9 vols. folio; Smithsonian Contributions to Scientific Knowledge, 5 vols. 4to; Schoolcraft's Indian Tribes of the United States, 2 vols. 4to; and many others.

It has already been announced that a fair will be held in the fall of 1855, and we confidently look forward to that co-operation and support which have always been generously extended to our efforts to promote the productive skill and industry of our common country.

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The proceedings above mentioned, as well as some reports and other interesting papers, will be printed in a volume of Transactions, and presented to the State Society as soon as completed.

ROB'T L. PELL,
LIV. LIVINGSTON,
D. M. REESE,
ROBERT LOVETT,
H. MEIGS,
E. T. BACKHOUSE,
PETER B. MEAD.
Trustees.

NEW-YORK, *March* 14, 1955.

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REPORT

ON THE

NOXIOUS, BENEFICIAL, AND OTHER INSECTS

OF THE

STATE OF NEW-YORK.

BY ASA FITCH, M. D.

STATE AGRICULTURAL ROOMS,
April 3d, 1855.

Hon. D. W. C. LITTLEJOHN,
Speaker of the Assembly:

I herewith present a supplemental report of the New-York State Agricultural Society, being the report on Noxious, Beneficial, and other Insects, made by Asa Fitch, M. D., the entomologist employed by the society in pursuance of the appropriation made by the Legislature, at its last annual session, for an examination and description of the insects of the State, particularly such as are injurious to vegetation.

This report was not completed at the time the annual report was presented, and it is desired that it be printed in connection with that report, of which it is designed as a part.

I am, very respectfully yours,

B. P. JOHNSON,
Cor. Secretary.

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IN ASSEMBLY, *April* 11, 1855.

Report of a select committee in relation to the report of the State Agricultural Society on the "Entomology of the State."

Mr. S. B. Cole, from the select committee, to which was referred that portion of the State Agricultural Society's report which related to the "Entomology" of this State, have examined with great interest the subject matter contained therein, and beg leave to make the following report:

When the geological survey of the State was ordered by an act of the Legislature of 1836, it was designed to obtain a full exploration of the entire Natural History of the State. But in the progress of that survey, the eminent individual who had charge of the zoological department, found his field so vast that it was impossible for him to accomplish all the work that had been assigned to him; and having completed five volumes upon the animals of the State, thus presenting for publication an amount of matter two-fold greater than that which was furnished by one of his colleagues in the original survey, he closed his labors without any report upon the *insects* of the State; these forming a branch of his department, in which for various reasons, he saw fit not to engage.

The objects which were thus omitted, constitute a most important portion of our natural history. The number of their species is six times as great as that of our plants. They are so minute that they require the closest, most accurate, patient, and persevering research. Hence, while every other department of natural science has been assiduously explored in our country, by a number of votaries, this remains comparatively uninvestigated. Entire groups and families, including many scores and even hundreds of species, have never been carefully examined, and a large portion of the insects of our State, remain to this day, without so

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much as names by which to designate them, while of the remainder, comparatively few have been traced through the several changes which they undergo, so as to acquaint us with their entire history; yet in an economical point of view, no branch of our natural history surpasses this in importance. Few are aware of the amount of damage annually occasioned by insects. Not a fruit or forest tree can be found within the borders of our State that is not overrun, and more or less injured by one or another class of these creatures; nor does there vegetate in our soil an herb, on which at some period of its growth they do not commit depredations.

The governments of other countries have been liberal in their expenditures for investigations in this most intricate and obscure department of science, and in many of these countries bounties to a large amount are paid from the public treasury, for the destruction of the more pernicious species. In the south of France, at particular seasons, the population of whole villages is occupied in collecting and destroying the eggs and young of grasshoppers and other noxious insects, to obtain the bounty paid therefor by government.

Thus there were paid from the public treasury at Marseilles, in one year 5,542 francs, in another 6,200; and in some years as many as 25,000 francs have thus been paid for that purpose, and similar sums in other provinces. Now, where our knowledge of these creatures is so limited and imperfect, and where no attention is given to their destruction, we are sustaining an annual loss and injury far greater than those of foreign countries. Yet in France, it is the common estimate that property to the value of twenty millions of dollars is annually destroyed by insects, while in the State of New-York alone, we have full proof that a single insect (the wheat midge) last summer destroyed property to an amount exceeding fifteen millions of dollars, and could the loss we sustain by the Hessian fly, the joint worm, (an insect which has lately appeared) and innumerable other noxious species within our borders, be ascertained and added to this, the aggregate amount would be truly appalling.

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It is not uncommon for the crops in some of *our* wheat fields to be entirely cut off. We have no accounts of such sweeping destruction as this ever taking place in Europe; indeed, such a calamity there would reduce whole districts to beggary. Nor have they any insect which strips the foliage from their trees to an extent at all to compare with the Palmer worm of this country.

In view of the fact, that to complete the Natural History of this State, as was originally designed, this branch was remaining to be examined, and that these objects were so imperfectly known, and were annually doing such a vast amount of damage, the Legislature at its last session appropriated one thousand dollars with which to commence this work. And it having been justly objected to the volumes of the Natural History of the State heretofore published, that they were so purely scientific in their character as to be unintelligible to the great mass of our citizens, and hence, of little practical benefit to them, this examination of the insects of the State was placed in charge of the State Agricultural Society, that the investigations might be conducted with a direct reference to economy, as well as scientific accuracy.

The society here presents the report which has been prepared pursuant to this appropriation. We find it a most interesting and valuable production, embodying facts and observations of much importance to the agricultural and horticultural interests of the State. Pursuant to the instructions of the society, to the person to whom this work was confided, it is chiefly occupied with an account of those insects which are injurious to fruit trees. Commencing with the apple tree, those insects which infest the root, the trunk, the bark, the leaves, and the fruit, are successively considered. Next in similar order are considered those which infest the pear, the plum, the peach, and the cherry tree. To these are added several other species which appeared the last summer, under circumstances favorable for learning their history and habits, infesting the hickory, the maple, the pine, and other indigenous forest trees, and some which occur upon garden vegetables and flowers.

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An account is first given of the particular injury which each species does to the vegetation which it infests; to this succeeds a description of the insect itself, in the different stages of its existence, and finally an account is presented of the remedies by which the insect can be destroyed, or the plant and tree which it infests shielded from its attacks. The whole is couched in plain, familiar language, perfectly intelligible to the general reader, and giving a clear and distinct view of each topic discussed. It is intended also, to illustrate by wood-cuts and engravings, the mode in which the leaves, wood, &c., are gnawed or otherwise injured, by each particular species, with figures of the insect in different stages of its life. A number of the insects whose history is given in the report, have never been named and described before, although occasional notices of the injuries done by some of them have appeared in our agricultural periodicals; and of the species before known, the account here presented has been principally drawn from original observations.

These observations frequently show that the accounts previously published, even of some of the most common and injurious species, are imperfect, and in some instances so inaccurate, that intelligent nurserymen, farmers, and editors of agricultural papers, have sometimes been misled, and have pronounced certain depredators to be a new and undescribed species. The full and thorough examination that has been given to several of these species, has led to the discovery of new and more efficient means for subduing them. For instance, the mode here pointed out for detecting and destroying the apple tree borer, is so simple, and obviously so effectual, that we doubt not, upon the publication of this report, it will immediately attract notice, and will supercede all the modes which have hitherto been employed for destroying this most pernicious insect. And your committee are of the opinion, that the able and interesting account which is here given of this insect, will induce thousands of our orchardists henceforth to be on the alert, and save their trees from this pest, now shown to be so common, and thus annually save to our State, from the depredations of this one insect, an amount much exceeding the sum required to continue these investigations.

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As it is the chief object of this examination to elicit and diffuse information of much importance to our citizens, upon a subject with which they are imperfectly acquainted, we would suggest that an extra number of copies of the report be printed, for we have no other legislative document which will be more acceptable and profitable to our constituents in the rural districts, or to any man who has even a fruit tree growing in his yard.

At the recent annual meeting, after a full consideration of this subject, the State Agricultural Society, by a unanimous vote, asked of the Legislature a continuance of the appropriation for the ensuing year, but that vote not having been communicated to the committee of ways and means, that item was not included in the appropriation bill which passed the House last week. Certainly, if the request of any body of men merits consideration from the Legislature, it is that of the State Agricultural Society, convened at its annual meeting, embracing a large number of our most intelligent and respectable citizens from all parts of the State, the very men upon whom the burthen of taxation most heavily falls.

The document which has been referred to your committee furnishes ample evidence of the able and thorough manner in which the work is conducted, and of the important information which it will bring to light; and when investigations of such value to our citizens, and so important to science, can be secured by an expenditure so small as the amount required for continuing this work, your committee can but think the State does itself great injustice, if it permits this examination of its insects to be suspended; indeed, the State is *too poor* to do without the contribution which can thus be made to her resources, and science will never excuse the Legislature, if it shall refuse the appropriation for this work. It has been a topic of remark and congratulation in scientific circles of Europe, which appreciate its importance, that the additions which will be made to the science by the exploration of the insects of this State, will be of great value to the student of "American Entomology."

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NEW-YORK STATE AGRICULTURAL SOCIETY.

The committee to whom the entomological report of Asa Fitch, M. D., was committed, most respectfully report,

That they have examined said report with much interest, and that it displays great care, as well as research, in relation to the insects injurious to fruit trees, which are there described. The minuteness with which the habits of the insects are detailed must render this one of the most valuable contributions that has ever been presented in this country. This is but the commencement of a most valuable work, all important to the farmers and fruit-growers of our State and country, and the Society can in no way contribute more satisfactorily to the advancement of this great interest than by continuing this work which has been so auspiciously commenced. Dr. Fitch has established a reputation as one of the ablest entomologists of our country, and this work will but add to his reputation.

The committee report that the work here submitted is in every respect adapted to carry out the objects of the Society in commencing this examination, and they trust that the appropriation will be continued, in order to carry forward a work so important to the interests of agriculture, and to the advancement of entomological science in our State.

W. KELLY,
B. P. JOHNSON,
Committee.

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ENTOMOLOGICAL SURVEY.

NEW-YORK STATE AGRICULTURAL SOCIETY,
Agricultural Rooms, May 8, 1854.

At a meeting of the executive committee of the Society, held at the Astor House, in the city of New-York, May 4,

Mr. Johnson stated to the board that the Legislature had made an appropriation of one thousand dollars for an examination of insects, especially of those injurious to vegetation, and authorizing the appointment of a suitable person to perform the work.

On motion of Mr. Johnson,

Resolved, That Asa Fitch, M. D., of Washington county, be appointed to perform the work, and that he be furnished with such accommodations as he may desire, in the rooms appointed for the laboratory, in charge of the Society, and that the President and Mr. Johnson, Corresponding Secretary, be a committee to prepare instructions for said entomological examinations.

The following instructions to the entomologist were prepared by the committee and delivered to Dr. Fitch:

ENTOMOLOGICAL EXAMINATIONS.

The Legislature, at its last session, having appropriated the sum of $1,000, to be expended by the Society in an examination of the insects of the State, especially those injurious to vegetation; the executive committee having appointed Asa Fitch, M.D., of Salem, Washington county, to make the examination, the following regulations for the guidance of the examiner were prepared by William Kelly, President, and B. P. Johnson, Secretary of the Society, the committee appointed for that purpose.

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As our State has had a thorough examination made of all branches of its natural history except its insects, it is of the highest importance that the remaining branch—not less in importance than the others—should receive attention. The committee feel assured that in the selection of Dr. Fitch they have secured a person every way competent to discharge the duties imposed in a manner creditable to the Society and the State.

In carrying out this examination it is desirable that equal prominence be given to economical as to scientific entomology, that being the part of this science which is specially important to the community at large. It has been objected to the volumes of the natural history of this State, that they are too purely scientific in their character to be of special value to the great mass of our citizens, and in the work now to be performed it is obvious that it will be of very little consequence to know that a particular kind of moth or fly is an inhabitant of this State, unless we are also informed of its history and habits, and whether it is a depredator upon any substance which is of value to man. The habits and instincts of our insects are a proper subject for inquiry as much as their names and the marks by which they are distinguished from each other. The whole history of every noxious species should at least be traced out as fully as circumstances will permit.

The examiner is therefore directed, in the first place, to make for the present season, the insects which infest our fruit trees the leading object of examination. Those infesting our forest trees, our grain and other crops, our garden vegetables, our animals, &c., will remain to be particularly studied hereafter. The examiner is desired in his examinations to search out every insect which is a depredator upon our apple, plum, pear, cherry, peach and other fruit trees, and study out all the facts in the history of each species, both in its larva and in its perfect state, as far as he shall have opportunity to do it. In this way a broad foundation will be laid to which additions can be made, which future observations may show to be necessary.

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Should any important insect depredator appear the present season in any other situation than upon the fruit trees, the opportunity for studying it should not be neglected, for the same species may not appear again in many years under circumstances as favorable for becoming acquainted with its real history. *Secondly*, what time is not necessarily occupied in examining the insects infesting our fruit trees, should be devoted to collecting and classifying the insects of the State, and to naming and describing such species as have not been described.

A report to be prepared at the end of the season to be submitted to the Legislature, showing what has been accomplished during the season, to be divided into two parts. The first, upon economical entomology, giving an account of all that has been ascertained respecting the insects infesting our fruit trees, and any other injurious species that may have been obtained. The second upon scientific entomology, giving a systematically arranged catalogue of all the insects of the State, so far as they are known, with a brief description of such new and undescribed as may be discovered.

The work should be pursued with a view of eventually securing to the State as full and complete accounts of all the insects of this State as far as to place this important science (which is at present so greatly in the back ground, and so partially and imperfectly explored upon this side of the Atlantic,) in as perfect a position and as favorable a situation for being acquired as its nature will admit of. Should there be time, in addition to the above to perform other labor, it is desired,

Thirdly, that a commencement should be made in writing out full descriptions of the species pertaining to some particular order, with observations upon the time of appearing, habits, &c., with a view of future publication, so as to secure a complete account of all the insects of the State pertaining to that order.

Lastly, suits of specimens to fully illustrate both the economical and scientific entomology of the State should be gathered in connection with the other parts of this work, to be placed in the

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cabinet of natural history; and in the agricultural museum, specimens of the wood, leaves and fruits, and other substances depredated upon by each and every species of our noxious insects, showing the galls or other excrescences which they occasion, the holes or burrows which they excavate, the webs or other coverings for themselves which they construct, with preserved specimens of the worms, caterpillars, &c., by which each of these deformities is produced.

Such further examinations as Dr. Fitch may deem necessary to carry out fully the objects desired to be accomplished, as from time to time may be deemed advisable, the committee desire may be made.

WILLIAM KELLY.
B. P. JOHNSON,
Committee.

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REPORT.

By Asa Fitch

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Executive Committee of the New-York State Agricultural Society:

I herewith submit a Report upon the Noxious and other Insects of the State of New-York, particularly such as are injurious to fruit trees, pursuant to your instructions, delivered to me in May last. I also present specimens of the several insects herein described, and of the vegetation as depredated upon by them, from which drawings may be taken for illustrating this report, and which are thereafter to be deposited in the Entomological department of the Museum of the Society.

It has been common in treatises upon economical entomology, to arrange the several species in their scientific order. Although this mode of arrangement has its advantages, it presupposes such an acquaintance with scientific entomology as but very few individuals in our country possess. A person who meets with a worm, say, mining a cavity in the leaves of the apple tree, and consuming their parenchyma, knows not whether that worm is the larva of a Coleopterous, a Lepidopterous, or some other Order of insects, and consequently is at a loss in what part of a work upon noxious insects, arranged in the usual manner, to look for an account of it. Even an experienced entomologist would be equally embarrassed in the case we have supposed, and would be unable to decide whether such worm was a leaf-mining moth of the Order Lepidoptera, or a Prickly beetle (*Hispa*) of the Order Coleoptera—so closely, according to accounts, do the larvæ of

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these widely separated groups resemble each other. I have therefore pursued a different mode of arrangement. As the insects which infest our fruit trees occupy the chief part of this report, they are first considered. Commencing with those which occur upon the Apple tree, I speak in succession of those which affect the root, the trunk, the twigs, the leaves, the flowers, and the fruit. In the same order, insects which occur upon the Pear, the Peach, the Plum, and the Cherry, are successively taken up. From our Fruit trees I pass to some species of much interest which have been examined, infesting our Forest trees, our Field crops, and our Garden vegetables. This mode of arrangement of the several topics will be perfectly intelligible to every reader; and, aided by the brief heading which precedes the account of each species, will enable him to turn at once to any insect which he wishes to find, which is here described.

In a field of such extent, and comprising such a multitude of objects, it will not be expected that the researches of a single season can suffice to bring this subject to anything approaching to completeness. I think it is Saint Pierre who remarks that he had made it a point to examine the several insects which made their appearance upon a particular rose bush in his garden, and at the end of thirty years he continued to find new kinds which he had never seen upon the bush before. And however assiduously one may investigate the history of a particular species during the period of its appearance one season, if he returns to the same insect another year, additional traits in its habits commonly continue to be discovered, equal in importance frequently to those which were first noticed. Those species which I have been able to investigate since I received your instructions, including several which have never been noticed in our country before, will be found fully reported in the following pages. The history of some important depredators upon our American fruit trees, the Plum weevil, for instance, and the Canker worm, which I have not as yet had time and favorable opportunities for examining, I hope to present on a future occasion.

As it is the primary object of this report to diffuse information upon an important topic with which very few are at present con-

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versant, I have throughout endeavored to treat the subject in a plain, familiar manner, avoiding any unnecessary resort to technical language, and using no terms but such as will be found clearly defined in dictionaries which are in every school district in our State. A few words, such as antennæ, thorax, abdomen, and elytra, which are so common in works upon insects that no one can expect to obtain the slightest acquaintance with this science without becoming familiar with them, I have employed, as it would savor of fastidiousness to substitute in their stead the corresponding English terms of horns or feelers, chest, body, and wing-covers, which applied to insects are modified from their common meaning, and the general reader will encounter much the same task in familiarizing himself to this modified signification that he will have in learning the more definite and convenient technical terms and their signification.

Those portions of the report which are designed for perusal only when one has specimens before him of which he is desirous to ascertain the names, are inserted in a type of a smaller size. The dimensions of the several insects, larvæ, &c., are expressed in inches and the fractional parts of an inch, 1.25 thus implying an inch and a quarter, 0.75 seventy-five hundredths, or three-fourths of an inch, &c.

With these explanations I submit to you this report, with the hope that it may aid in rendering this branch of science more known to our citizens and available in adding to their comfort and welfare.

ASA FITCH.

Fitch's Point, (*East Greenwich P. O.*,) *March* 14, 1855.

P. S. The Legislature having made provisions for a continuance of this work, as another report will be presented the coming year, a number of species which are in a state of forwardness for publication, and which we had contemplated inserting in the present document, are withheld in the crowded state of the Society's volume of Transactions the present year, with the hope that we shall be able to obtain additional facts to render our account of

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these species more complete and exact, and also with the anticipation that we shall be able to accompany them with suitable illustrations, which could not be got ready for insertion in the present volume. A. F.

August 7, 1855.

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INSECTS INFESTING FRUIT TREES.

1. THE APPLE.

AFFECTING THE ROOT.

Wart-like excrescences growing upon the roots, sometimes of an enormous size; containing in their crevices exceedingly minute lice, often accompanied with larger winged ones having their bodies covered with a white cotton-like matter.

The APPLE-ROOT BLIGHT, *Pemphigus Pyri*. Synonyms, *Eriosoma Pyri*, FITCH, Fourth Report of the N. Y. State Cabinet of Nat. Hist., A. D. 1851, (Senate Document, No. 80) p. 68. *Pemphigus Americanus*? WALKER, List of Homopterous Insects in the British Museum, 1852, p. 1057.

Upon the 29th day of October, 1849, I was occupied in setting out a number of young Apple trees which had been brought me from the nursery at Glens Falls, Warren county, when, on the roots of one of these trees, I observed some very singular excrescences. I was conjecturing as to the cause of this remarkable disease, which appeared to be sufficient to destroy the tree, when, nearly concealed in one of the largest excrescences, a woolly Plant-louse was perceived, and on further inspection, a second one was found, similarly secreted—one of these being dead, the other alive. And on examining the crevices of this excrescence with a magnifying glass, they were discovered to be occupied by numerous lice, so minute as to be wholly imperceptible to the naked eye. These, there can scarcely be a doubt, were the young of the larger winged lice, first noticed.

Upon the wing, in groves, late in the autumn, I have captured numerous individuals of this same species, where no apple trees were growing within a half mile. These were probably bred upon the roots of the Thorn or the Shad-bush (*Amelanchier*

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Canadensis), and it may possibly prove to be the fact, that this insect is not limited to the *Pomeæ* family, but infests the roots of other deciduous forest and fruit trees.

This affection of the roots of Apple trees has occasionally been noticed in our agricultural periodicals, and various enquiries have been made respecting the insect which occasions them, which enquiries have received no satisfactory answers, for the reason that the insect is a new species, different from any hitherto described in books or known to our nurserymen and fruit growers. A communication from J. Fulton, jr., of Chester county, Pa., in Downing's Horticulturist, vol. iii, p. 394, gives additional evidence of this being a common disease over a large extent of our country, and causing great losses to our nurserymen. He says: "The main purpose of my writing is to call attention to an important matter, and to ask for light upon the subject. In taking up trees this fall (1848), I notice that some of the roots will be full of excrescences, or warts, and covered with a minute white, woolly insect; and that some of them find lodgment on the trunks of the trees, in the partly closed wounds made by pruning. As the trees seemed vigorous, I paid little attention to the subject, until another nurseryman called my attention to the subject, and stated, that not being able to supply the demand for Apple trees, he had been at several nurseries in this State to purchase, and was hard set to get a supply, because so many proved diseased in this way, and that thousands had to be thrown away. Since this, a young friend of mine has returned from Virginia, where he had sold and delivered several thousand trees; and he informs me that his trees were very generally so, and that he was not aware that the appearance was at all prejudicial to the health or value of the trees, nor did the propogator of them seem to be aware of their hurtful nature. Can this insect be the 'woolly aphis?' And if so, what can nurserymen do to get rid of a pest which, unfortunately, is by no means rarely seen? I have detected the presence of the insect much the most frequently on trees which grow in a gravelly or slaty soil, and seldom on trees growing in a mellow loam."

A short description of this species was published in my catalogue of the Homopterous Insects, in the State Cabinet of Natural

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History, under the name of *Eriosoma Pyri*. All those Plant lice which were formerly included in Dr. Leach's genus *Eriosoma*, which have all the veins of the wings simple, and those in the disk of the hind pair two in number, now form the genus *Pemphigus* of Hartig (Germar's Zeitsch. vol. iii. p. 366), to which genus it is therefore necessary to refer this insect.* Several of the other species of this genus, as well as the present one, are known to infest the roots of plants. I entertain scarcely a doubt that this is the same species which Mr. Walker soon afterwards described, from specimens obtained in Nova Scotia, under the name of *Pemphigu Americanus;* though the length which he assigns to it (four lines) is rather greater than any individuals I have met with.

To our nurserymen it obviously belongs, to fully elucidate the history of this species, and the disease which it occasions, as they enjoy opportunities for observing it such as belong to no other profession. The knots, or excrescences, occur both upon the large

* Mr. Westwood, in his Arcana Entomologia, vol. ii. p. 68, observes that the name *Bryocrypta* (Byrsocrypta) of Haliday must be retained for Hartig's genus *Pemphigus*. And on the next page we are told: "The generic name of *Eriosoma* (Leach) must take place of that of *Pemphigus*, and be restricted to such species as differ from *Aphis bursarius*." There is a contradiction here, which I can only account for by supposing the distinguished author, who is so accurate a nomenclator, has inadvertently placed the name *Pemphigus* in the latter quotation, where he intended to insert *Schizoneura*. The first division of the old Linnæan genus *Aphis* appears to have been made in 1819, when Samouelle (in his Entomologist's Companion, p. 232) published the genus *Eriosoma* from Dr. Leach's MSS., with the "*E. Mali*, the *Aphis lanigera* of authors," or the well-known Apple tree blight, as its type. Samouelle's little work, truly a "Useful Companion" in its day, probably was not circulated upon the Continent, and entomologists there seem to have been uninformed of its contents. Several synonyms, in consequence, have unfortunately been introduced into the science. Five years afterwards, Biot (in the Memoirs of the Linnæan Society of Calvados, vol. i. p. 114) named the same insect *Myzoxylus Mali*, which name has been extensively circulated by French writers. Still more recently, Hartig (in Germar's Zeitschrift, vol. iii. p. 367) has proposed the name *Schizoneura* for this same genus; whilst Macquart has bestowed the name *Eriosoma* upon a genus of flies, in the Order *Diptera*. Mr. Westwood is clearly right in retaining Dr. Leach's name for the genus having *Aphis lanigera* as its type.

With regard to the statement first made above, I would observe, Mr. Haliday first proposed the genus *Byrsocrypta*, if I mistake not, in the Annals of Nat. Hist. for the year 1839, page 189, placing under this genus the *Aphis Ulmi* of Geoffroy, and a new species which he names *pallida*. We hence regard the *Ulmi* and not the *bursarius* as the type of Mr. Haliday's genus. Consequently the name *Byrsocrypta* must be retained for the genus which has *Ulmi* for its type, namely, the *Tetraneura* of Hartig; whilst his genus *Pemphigus*, with *bursarius* as its type, is entitled to stand. I therefore give our American species under this name.

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roots of the Apple tree and their more slender, fibrous, and capillary branches. In the single instance in which they have come under my notice, the main root of the young tree was half an inch in diameter, half a span below the surface, at which point it was two-thirds surrounded by an excrescence two inches in length and three inches in diameter and height, and connected to the root by a neck much smaller than its base. (The accompanying

figure is a view of the back of this excrescence, reduced to one fourth its actual size, and one of the small fibrous roots, with an excrescence thereon. The original specimen is preserved in the Entomological department of the Museum of the State Agricultural Society.) It is of an irregular, knobbed form. Its surface is of the same yellowish-brown color as the bark of the root, and is everywhere crowded with little round elevations, from the size of a mustard seed to that of a buck shot or a small pea. On cutting one of the projecting knobs, it is found to be of a very hard, woody texture, and without any cavities in its center. Upon the main root, between this and the surface of the earth, was a second similar excrescence, but smaller; whilst upon several of the small capillary fibres were similar tubers, from the size of a pea to that of a bullet.

These excrescences are doubtless formed in much the same way that galls and other morbid enlargements in the structure of vegetables are produced. The parent insect insinuates herself downwards along the side of the root, as it would appear, at the close of autumn, and there deposits her stock of eggs, and perishes. These eggs hatch when the ground becomes warm the following spring, and the young lice insert their beaks into the bark of the root to extract their nourishment therefrom. Their punctures produce a kind of irritation, which causes an increased flow of fluids to the spot where they are located. This excessive amount of sap thus diverted to this part occasions an increased growth of the wood, and results in the enormous development which we have witnessed. As in other cases in this family, these lice probably continue to multiply without any intercourse of the sexes

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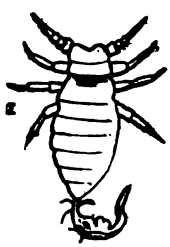
until autumn, when winged individuals are developed, which leave their retreat, and coming abroad into the open air, copulate, and search out new situations in which to plant their species. Others, as I infer from the lateness of the season when I found young lice upon the excrescences, remain in their abode through the winter, to continue their operations upon the same roots the following year.

The *young larva*, as appears from the hasty notes and sketch which I was able to take whilst they were still alive, were scarcely four hundredths of an inch in length, of an oval form and a pale dull yellow color. Their legs were shortish, robust, and nearly equal in length. The antennæ appeared much like a fourth pair of legs, being robust, and about the same length as the legs; they seemed to be five-jointed, the joints successively diminishing in diameter, the one next to the last being longest. From the tip of the abdomen of each of these young lice protruded a white filament, or short thread of flocculent cotton-like matter, variously curled and crinkled in different individuals. The whiteness of this filament rendered it perceptible to the naked eye, and served to show the situation of the insect as it moved about upon the surface of the excrescence, when otherwise it would have been wholly invisible.



The *mature winged individuals* are nearly or quite a quarter of an inch in length to the tips of the closed wings, and these, when spread, measure thirty-eight hundredths of an inch across. The body, legs and antennæ are coal black; the antennæ are about half the length of the body, and the head and abdomen on its back are covered with a dense mass of snów white or bluish white flocculent down. The upper wings are transparent and slightly smoky, as though fine dust had settled upon them. This cloudiness is rather more dense at their tips. The veins are black, faintly margined with dusky brown. The rib vein is robust, and from its base to the stigma very slightly approaches the margin, it then gradually diverges from it to the base of the fourth vein, where it is more distant from the margin than in any other part of its course; it thence curves slightly towards the margin, and joins it at a very acute angle, the margin being commonly slightly contracted, or obtusely notched, at the point of junction. The first vein curves slightly towards the tip on its basal part, and then runs straight, or near its apex curves almost imperceptibly towards the inner margin. The second vein is rather more robust than the first, is thickest in its middle, at its base curved towards the tip, middle portion straight, apical third curving towards the inner margin; its base is nearer to the base of the first vein than to the outer margin, and it is about seven times as far from the first vein at the apex as it is at the base. The third vein is rather more slender than the first, nearly straight, sub-parallel with the second vein two-thirds of its length, its basal third abortive and imperceptible except in a particular reflection of the light, base about the same distance from the base of the second vein that this is from the first, apex nearer the apex of the second vein than this is to the first. The fourth vein is more

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robust than the first and third, thickest at base and gradually more slender thence to the tip, basal portion gently curved, the remaining part straight, its apex nearer that of the third than that of the rib vein, about the same distance from the apex of the rib vein that the apex of the third vein is from that of the second. Marginal vein robust and black from the base to the stigma, very slender and black along the outer margin of the stigma, slender and brown from the stigma around the tip of the wing and along its inner margin to the apex of the first vein, thence robust and black, gradually becoming brown towards the base, stigma dark smoky brown, oblong, its opposite sides nearly parallel, abruptly converging to an acute point at each end, the basal end more acute than the apical, and slightly attenuated. Lower wings more clear and hyaline, marginal vein and outer filament of the rib vein pale brown, inner filament black and very gradually diverging from the outer, both filaments undulated beyond the base of the second vein; the two discoidal veins blackish, the first slightly undulated, its apex the same distance from the apex of the second that this is from that of the inner filament of the rib vein.

An abnormal variety has fallen under my notice in one instance, in which the apex of the fourth vein of the right wing was slightly forked.

When a tree ceases to grow with its usual vigor, and its leaves are of a paler and more yellow hue than usual, and no borers in the trunk, or other obvious cause of disease can be discovered, the presence of this blight upon its roots may be suspected, and the earth should be removed from them sufficiently to ascertain whether excrescences such as have been above described are formed upon them, and if discovered, it will be well to clear away the earth from around them as much as can conveniently be done, and pour strong soapsuds upon them, that it may saturate the crevices in the excrescences, for there is little doubt that every insect that is reached and wetted by this solution will immediately perish. And ashes should be freely mingled with the soil with which the roots are covered. It is probable that by a resort to these measures an affected tree can in most instances be cured.

It is chiefly in nurseries, upon the roots of young trees taken up to be transplanted, that the blight will be detected. In consequence of it thousands of trees in our country have undoubtedly been thrown away. But there is probably no necessity for rejecting such trees. If the root be dipped in soap suds, unless the lice upon it are a much hardier race than their kindred which dwell upon the leaves and twigs of trees, they will at once be de-

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stroyed, and such trees may then be set out with as much safety as though they had never been affected. This, at all events, is a point which any nurseryman can easily ascertain by experiment. Mr. Downing recommends the mixing of a shovelfull of ashes with the earth in which such trees are set, which may be equally as effectual as an immersion of the roots in soap suds.

AFFECTING THE TRUNK.

Excavating a round flat cavity under the bark near the root, and then boring a cylindrical hole upward in the solid wood: a yellowish or white, footless, cylindrical grub, broadest anteriorly, with a brown head and black jaws.

The Apple Tree Borer. *Saperda bivittata*, Say. Synonym, *Saperda candida*? Fabricius.

This is one of the worst enemies against which our apple trees have to contend. It is much more common everywhere in our country than is generally supposed. The editor of the Ohio Cultivator (vol. x, page 212,) speaks of it as a New England insect, which has never been seen as yet, to his knowledge, in Ohio. There can be no doubt, however, that it is common in that State, for I met with it last autumn in the orchards of Michigan and Illinois, and am informed by the editor of the Prairie Farmer that it has for many years been found in the neighborhood of Chicago. Specimens of the beetle have also been sent me from Arkansas; and as this is a native insect, which breeds in the different species of thorn, in the mountain ash, and the shad-bush, there is a strong probability that it is as widely spread over our country as these trees are. And notwithstanding it has been so often noticed in our agricultural and other papers, many of our citizens are yet wholly unaware of its existence, and others who are familiar with the published accounts, suppose it occurs only in some distant localities, and are wholly unsuspicious that their own neighborhoods and their own trees are suffering from it. We have reason to believe that in many instances where orchards are dwindling and dieing from the attacks of this insect, their proprietors suppose there is something in the soil or local situation which prevents their fruit trees from being more vigorous and

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flourishing. In many sections of our country, it is the current opinion that particular localities are unfavorable to the growth of fruit trees, and this opinion has almost invariably arisen from the fact that orchards planted in these situations have not been thrifty and productive. Now there is a strong probability that, at least in many cases, those failures have been caused by the attacks of insects, and that these localities which are in such bad repute are in reality as well adapted for fruit culture as any others in their vicinity. The justness of these remarks will be evident from the following case: A lot at East Greenwich, Washington county, recently purchased by Dr. Henry K. McLean, had ten young apple trees standing upon it, which are about ten feet high. The bad condition of these trees was noticed by the doctor, when bargaining for the land, and he was told by the former owner that he must not expect fruit trees to do well there, the soil and situation (a terraced flat of gravel, bordering upon Batten kill,) being unadapted to them. Other residents in the neighborhood reiterated the same statement. The doctor, on inspecting the trees more closely, soon afterwards, discovered that they were badly infested with the borer, and going to work with his knife, he last spring dug out and destroyed from these ten trees, over sixty worms, as he assures me, although the statement is almost incredible. Several of the trees were almost girdled, and would have been quite so in a short time. These trees now show for themselves that during the past summer they have scarcely been equalled in the rapidity of their growth and their thrifty condition, by any others in the country. And it is thus rendered evident that the gardens and yards of that neighborhood are well adapted for the cultivation at least of the apple tree, and that the bad repute in which they have heretofore been held has been wholly unmerited.

Elmer Baldwin, Esq., of Farm Ridge, La Salle county, Illinois, an intelligent fruit culturist who has had much experience with some of the insects infesting our fruit trees, and to whom I am indebted for several interesting facts relating to this and other species, informs me, that he set out fifty apple trees in the year 1838, and in 1843 when they had grown to about three inches in

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diameter, a neighbor enquired if the borer was among his trees, saying it had killed nearly half the trees in his orchard. This was the first time his attention was directed to this insect, and on examination he found that almost every one of his trees had from one to five worms in them; and several were destroyed, beyond all possibility of saving them. In one instance he has found twenty of these worms in one tree. For a few years past they have not been so numerous in his vicinity as they previously were. He has kept a pretty accurate account of his fruit trees, and finds that of all the apple trees he has planted, he has lost one in every eight from the borer. The insect is more fond of the quince, even, than it is of the apple, insomuch that he has found it impossible to grow this fruit, the stalks, notwithstanding all the care he has given them, being almost invariably riddled by the borer. Though he has set out very many quince trees during the past sixteen years, he has never been able to get but a dozen quinces, and these were gathered in the fall of 1858, when all kinds of fruit were so abundant in his section of country.

The accounts which have been given, and the ideas that are prevalent respecting the burrow which this worm excavates in the trees which it attacks are very imperfect, and in part erroneous. It is the common opinion that it simply bores a cylindrical passage upwards in the solid wood of the tree, which passage it keeps clean and empty. If this were the case, a constant effort, I think, would be required to prevent this footless worm from falling to the bottom of its burrow. As we shall see, that part of its operations whereby it does the most injury to the tree, has been hitherto overlooked.

The winged beetle makes its appearance every year early in June. Like other species of the family of long horned beetles (*Cerambycidæ*) to which it pertains, it flies only by night. In the course of this and the following month the female deposits her eggs, one in a place, upon the bark, low down, at or very near the surface of the earth; but when these beetles are numerous, some of their eggs are placed higher up, particularly in the axils where the lower limbs proceed from the trunk. From each of these eggs is hatched a minute grub, or more properly a maggot,

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for it has no feet. It is of a white color, with a yellowish tinge to its head. This maggot eats its way directly downwards in the bark, producing a discoloration where it is situated. If the outer dark colored surface of the bark be scraped off with a knife the last of August or fore part of September, so as to expose the clean white bark beneath, as can easily be done without any injury to the tree, wherever there is a young worm it can readily be detected. A little blackish spot, rather larger than a kernel of wheat, will be discovered wherever an egg has been deposited, and by cutting slightly into the bark the worm will be found. It gradually works its way onwards through the bark, increasing in size as it advances, until it reaches the sap-wood; here it takes up its abode, feeding upon and consuming the soft wood, hereby forming a smooth round flat cavity, the size of a dollar or larger, immediately under the bark. It keeps its burrow clean by pushing its excrement out of a small crevice or opening through the bark, which it makes at the lower part of its burrow, and if this orifice becomes clogged up it opens another. This excrement resembles new fine saw dust, and enables us readily to detect the presence of the worm by the little heap of this substance which is accumulated on the ground, commonly covering the hole out of which it is extruded, and by particles of it which adhere around the orifice where it is higher up, or in the fork of the tree; the outer surface of the bark also often becomes slightly depressed, or flattened, over this cavity.

When the worm is half grown, or more, as if conscious it would now form a dainty tid bit for a woodpecker or any other insectivorous bird, and that it was daily becoming less secure in its present situation, by reason of its burrow being so large, and forming so much of a cavity as to be liable to be detected by any scrutiny made on the outside of the tree, it seeks to place itself in a less exposed situation, by gnawing a cylindrical retreat for itself upwards in the solid heart-wood of the tree. Some of its habits are now reversed. The flat cavity which it was so careful to keep clean it is now intent upon filling up and obliterating, as far as it is able, that it may not be discovered. It ceases to eject its castings, and now crowds and packs them in the lower part of its

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burrow, as it bores a round hole, upward, in the solid wood. This hole runs slightly inwards, towards the centre of the tree, and then outwards, so that when it is completed its upper end is perforated through the sap-wood, and is only covered by the bark.

The lower flat portion of its burrow is by this time stuffed in every part with its castings, whilst the long cylindrical passage above is still empty. As if fearful that these castings, being so fine and dry, might sift out, and thus leave an open passage for some marauding insect or other enemy to crawl in and destroy it during its defenceless pupa state, and that it may, during this period of its life, be securely held in the middle of its cylindrical hole, the worm now turns itself around, (as I think, for it is impossible to conjecture how otherwise this long round cavity becomes filled in the manner in which we usually find it,) and with its jaws strips a quantity of woody fibres from the inner walls of the middle part of its burrow, thus enlarging this part sufficiently to give it ample room to repose here in its pupa state, when its body becomes more short and broad than it has previously been. With these fibres of wood, which are from a half to three-fourths of an inch in length, it firmly plugs up all the lower part of its burrow above the flat excavation in the sap-wood, placing the fibres frequently in as regular order as the hairs of a mustache. And the castings which it voids when in this inverted position are crowded, and firmly packed together in the upper end of its burrow. Thus the long cylindrical hole which it has bored becomes filled up, and securely plugged with woody debris at each extremity, leaving only a vacant space in its middle, where it is deepest sunk in the wood of the tree, for the insect to lie during its pupa state. The annexed cut will give an idea of these burrows and their contents, as they appear when the bark is removed and the wood cut away sufficiently to expose their whole length to view. Having now finished its labors and attained its growth it again

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turns itself around to its former posture, with its head upwards, becomes inactive, and lies dormant during the winter season, and the following spring is transformed to a pupa. From this pupa the perfect insect soon after hatches, and tearing away the saw-dust like powder which has been packed in the upper end of its burrow, it has only to break through the bark here, which it easily does with its sharp, powerful jaws, to come out of the tree.

It will thus be seen that the burrow of this worm consists of two distinct parts—a round flat excavation in the sap-wood, immediately under the bark, and a long round hole in the solid wood, running upwards from the upper part of the flat cavity, first inwards towards the centre of the trunk, and then outwards to the bark. This upper portion of the burrow is variable in its length, being sometimes no more than an inch and three quarters, and at other times, as I am informed, a foot or more. The lower flat portion, as already stated, is about the size of a dollar, but is frequently much larger than this; and when the worm comes to knots or other obstructions when excavating it, instead of making it round it is cut out in an irregular form. But in all cases the worm passes the first periods of its life in consuming the sap-wood, its jaws probably being too weak as yet to enable it to work in the harder wood of the interior of the tree, and it is by thus mining in the sap-wood, and cutting off so many of its vessels, that this worm does the chief injury to the tree, stinting it in its growth, and causing the leaves to assume a yellowish, sickly hue. And where four or five worms are at work in one young tree, as is often the case, these flat cavities in the sap-wood are liable to come in contact with each other, and thus completely girdle and destroy the tree.

Numerous variations in the form and direction of the burrows of these borers may be met with. Some of the worms seem to be very wild and erratic in their proceedings. It is sometimes the case that as soon as it reaches the sap-wood it works directly upwards, under the bark, and then turns, it may be, obliquely downwards before entering the heart-wood. A most singular deviation from the usual habit was related to me by Esquire Bald-

win, as follows: "The borer first made a flexuous channel upwards, under the bark, a distance of two feet, the channel becoming gradually larger as the worm had increased in size. Having traced its burrow thus far by means of a pointed twig, for (said my informant) whenever I find one of these fellows in my trees I am after him immediately 'with a sharp stick,' I found he had bored directly through the centre or heart of the tree, which was four inches in diameter, taking a course slightly upwards, so that after loosening and removing some of the stuffing in the hole, I discovered my rod had pricked through the bark on the opposite side of the tree, and yet did not encounter the worm; but on examining upon this side of the tree I found, having not quite completed his feast, he had gone upwards in the sap-wood three inches further, where I finally discovered 'the gentleman.' He evidently had finished his travels, for he was an inch and a half in length, was sluggish and inactive, and to all appearances was about changing to a pupa." According to Dr. Harris (Treatise on New England Insects, page 95,) the larva state of this insect continues from two to three years.

Mr. T. B. Ashton, of Whitecreek, New-York, informs me that he has in different years captured about one hundred and fifty of these beetles in their perfect state, and that only one-third of these have been females. According to his observations the time of their appearance varies somewhat, as the season is more forward or backward, but commonly, here in Washington county, forty miles north of Albany, they begin to be found upon the trees about the 20th of June, from which time until the close of the month they appear to be more numerous than they are afterwards.

The mature worm varies considerably in its size, but is most commonly rather less than an inch long, and over a quarter of an inch in diameter anteriorly at its broadest part. It is of a cylindrical form, the second segment being bulged and rather broader than the others. It is soft and fleshy, and of a very pale yellow or a white color. The head is chestnut-brown, polished and horny, with scattered hairs; the upper jaws (mandibles) are deep black, sloped at their tips, which are obtusely rounded; between them appears the labrum or upper lip, of a tawny yellow color, and densely clothed with short hairs; the throat is also pale tawny yellow. The feelers (palpi) consist of a conical, three-jointed process, on the under side of each mandible and inserted upon the lower jaw (maxilla), the tip of which slightly projects in the

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form of a short roundish process at the inner base of the feelers. The feelers of the lower lip (labial palpi), are also perceptible, forming a conical two-jointed process of a chestnut color, inside of each lower jaw. The antennæ are also represented by a small jointed, projecting point, near the outer angles of the head, so minute that we should little suspect it would become developed into the long horn which we find in the winged beetle. Scattered over the remainder of the body, more densely in particular places, are numerous short brown hairs. The second segment is larger than any of the others, as shown in the following cut; its upper side slopes obliquely downwards and forwards, and is occupied by a large smooth spot of a pale tawny yellow color, the posterior part of which is covered with brown points; beneath is a smaller transverse space, occupied by similar points, but with a band destitute of them running across its middle, and on each side is a pale tawny yellow spot destitute of these brown points. The third and fourth segments are shorter than the following ones. On the top of the fourth and each of the succeeding segments, to to the tenth, is a transverse wart-like elevation, divided into two parts by a strongly

impressed longitudinal line. Along each side the spiracles or breathing pores form a row of nine chestnut brown dots, situated upon the second, the fifth and each of the following segments; and immediately below these is an elevated longitudinal ridge, which is interrupted at the joints. Beneath, as above, is a transverse wart-like hump on the middle of each segment from the fourth to the tenth, with a faint longitudinal impression across its middle. There are thirteen segments in all, separated from each other by strong constrictions. The last one of these is double, or appears like two segments, its posterior portion being but half as broad as the anterior, into which it is deeply sunk.

The perfect insect or beetle measures from slightly over one-half to plump three-fourths of an inch in length, and from 0.17 to 0.25 in width, the males being smaller and much more slender than the females. It is covered with dense appressed milk-white p bescence, and above are three broad stripes, formed by short appressed hairs, of an umber or butternut brown color, not a fuscous brown, as is stated in some of the descriptions. These stripes commence upon the base of the head and extend the whole length of the body. Both upon the thorax and the elytra they are coarsely punctured, each puncture yielding a short black nearly erect bristle. The middle stripe embraces the suture of the elytra, is gradually narrowed to a point posteriorly, and does not reach the apex of the suture. The outer stripes are narrower on the thorax, and occupy the outer half of each elytrum, and are edged exteriorly at their tips with white. The white portions of the surface are clothed with fine white hairs, which on the face are interspersed with black bristles arising from fine black punctures. The head has an impressed black line in its middle, upon which in the center of the face is a brown spot, which is round, kidney-shaped, or like the letter V. In the females this spot is sometimes wanting, or is replaced by two faint dots. The mouth is black, with the labrum or upper lip and the bases of the mandibles clothed with white appressed hairs. The eyes are coal black. The antennæ are inserted upon a short broad prominence which arises in the notch of the eyes. They are slightly longer than the body in the males, and shorter in the females. They are composed of eleven joints, whereof the second one is quite short and all the others long and cylindrical, the basal one being much

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thicker than the others. They are covered with appressed white hairs upon a black ground, causing them to appear gray in the males and white in the females. The basal joint has several scattered black bristles, and upon the under side is a row of similar bristles to the end of the fifth joint, and three at the tips of each of the three following joints. The thorax presents a slender line in its middle, which line is impressed posteriorly and elevated anteriorly, its anterior end being often of a white color. The legs are of the same color as the antennæ, the soles of the feet being pale brown or yellowish, and the hooks at their tips are reddish-brown.

This insect was regarded as a new species by Mr. Say, and he accordingly described it in the year 1824, in the Journal of the Academy of Natural Sciences, (vol. iii. p. 409,) under the name of *Saperda bivittata* or the Two-striped Saperda, which name is also adopted by Dr. Harris, and is currently known throughout our country as the scientific name of this insect. Fabricius long since very briefly noticed a species (Entomologia Systematica, vol. i. *b*. p. 307,) which he found in the museum of Dr. Hunter, the native country of which was unknown, under the name of *Saperda candida*, or the White Saperda. He merely says of this insect that it is white, above fuscous with two white stripes, and with obtuse, smooth elytra. As Dr. Hunter's museum contained many insects from this country, Prof. Haldeman and Dr. Le Conte regard our Apple tree borer as being without doubt the *S. candida* of Fabricius. In this they are probably correct; but as our insect is clearly of an umber and not a fuscous brown color, and has punctured elytra, marks which are at variance with the Fabrician account, I deem it more safe to retain the name given by Mr. Say, connected with which there is no query, until our insect has been compared with the specimen, which is probably still in existence, from which Fabricius drew his description.

Among the means provided by the Author of Nature for destroying this borer and keeping it from becoming unduly multiplied, the woodpeckers of our country, and particularly the Downy woodpecker (*Picus pubescens*, Lin.), which is so frequently seen in our orchards, stands conspicuous. This gay bird seems to have been endowed with the habits and furnished with the organs which it possesses, for the express purpose of enabling it to discover and prey upon the Apple-tree borer and similar larvæ. As these worms place themselves under the bark, down

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at the very surface of the ground, their lurking place can only be found by a bird which makes its examinations with its head downwards; and the slender, extensile, flexible, barbed tongue of this bird was evidently constructed to enable it to probe the holes and explore the crevices and cavities of the bark, and transfix and drag from its cell any worm which is found reposing there. Esquire Baldwin tells me that in numerous instances he has found the flat cavity excavated by the borer under the bark, without any vestiges of a worm in it, and has been wholly at a loss to account for its disappearance at this time, when its burrow is not half completed. My neighbor, Peter Reid, who has devoted much attention to our birds and their habits, informs me he has repeatedly noticed the woodpecker remaining some considerable time down at the very root of the Apple tree, busily occupied in some operation at that particular part. These facts we think clearly elucidate each other, and render it evident that the woodpecker is the most formidable natural enemy to the Apple-tree borer which exists. And whether such a war of extermination should be waged against this bird, as has been declared by high authority (Kirtland's Zool. Ohio, p. 179), we leave to be considered hereafter.

It is probable, from what is said of the next species, that this also is subject to the attacks of Hymenopterous or Bee-like parasites, which feed upon and destroy the worm, although I am not aware that any of these have as yet been actually discovered preying upon it.

On glancing over the various remedies which have been proposed, and which may be met with in our agricultural papers, for the destruction of this borer, we are forcibly impressed with the fact, that, although these publications are doing great good in our community, they still unwittingly circulate many things that are foolish, and some that are pernicious. As an instance, we may cite the following: "One of the surest means to destroy the borers in Apple trees, is to make a solution of potash, two pounds to a gallon of water, which must be injected into the hole where the borer has entered, by means of a syringe holding half a pint." Now, we are not without suspicions that so strong a solution of caustic potash would destroy not only the borer, but the tree

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also, especially if a half pint of it could be injected into each the holes which are frequently made by four or five worms in o young tree. But as these holes are commonly already stuff full of sawdust-like matter and woody fibres, we see not ho anything can possibly be injected until these are removed. A this solution; we are further told, must be injected "into the ho where the borer has entered." Now this hole is at first no larg than a pin, and often becomes wholly closed up in the course a few weeks, so that, as Hood says, "there a'n't no Billy ther —the worm having opened another orifice through which to eje its castings. Yet the terms of the prescription are explicit a peremptory. Through the hole where the worm has entered t solution "must be" injected.

In the treatment of the Apple-tree borer, to use a medical ter there are two "indications." The first is, to protect the tr from attack; the second, to destroy the worm. And as we ha simple, direct, and effectual modes for accomplishing both the purposes, there is no occasion for dwelling upon those which a of doubtful efficacy or inconvenient to be applied.

Experiments amply show that alkaline preparations of suitab strength are most repulsive, nay, directly poisonous to most i sects and their larvæ, whilst upon vegetation they have an opp site effect, promoting the health and accelerating the growth plants. Of these preparations, one of the least expensive, o which is everywhere at hand, and of suitable strength for bei applied freely to the outer bark of trees without danger of erodi or otherwise injuring its texture, is common soft soap. Ma citizens from all parts of our State, who were present at the la annual meeting of the State Agricultural Society, will recolle the high encomiums passed upon this article, by the Hon. A. Dickinson, and his statement that a handful of it placed in t axils of the lower limbs was a sovereign prophylactic, repelling a insects from the tree. Although we cannot deem the applicati of this substance in this simple manner such a panacea as was i timated—indeed, we are confident it could have no effect to pr vent a moth or a plant-louse from alighting and depositing eggs upon the distant leaves and twigs—yet against all those i

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sects which infest the trunk or which are obliged to crawl up the trunk to gain access to the tree, we have little doubt it will prove an effectual safeguard. Washed downwards as it will be by the rains so as to impregnate the bark over the chief part of the trunk and to the very root, there is little probability that the beetle of the Apple-tree borer will venture to deposit its eggs in a situation where those eggs, or the young worms which proceed from them, will be exposed to destruction from encountering this alkaline matter. The late Mr. Downing (Horticulturist, vol. ii. p. 531) recommended a mixture of soap, sulphur, and tobacco water, with which to paint the bark of the tree immediately above the surface of the ground, and in the axils of the lower limbs; subsequently (vol. iv. p. 536) he recommends soap merely thinned with tobacco water, to the consistence of thick cream, to be applied to the same places. According to his observations, the borer entirely forsook the trees which were thus washed, even though the mixture had been applied some weeks previous to the appearance of the winged beetle. There can be little doubt that the efficacy of these prescriptions of Mr. Downing depend chiefly, if not entirely, upon the soap they contain. It will be as well, therefore, to apply this alone, in the manner in which it is used by Senator Dickinson, or by rubbing it in the axils of the lower limbs and around the base of the tree, these being the parts which are liable to be attacked by this insect. In all orchards where the borer is present or where a visit from it is apprehended, this measure should invariably be resorted to the latter part of May, or, in more northern localities, where the beetle will be somewhat later in appearing, early in June. Young thrifty trees, especially, should be attended to, as this insect appears to be particularly inclined to infest them.

With regard, in the next place, to destroying the worm, where the trees have been neglected and the beetle has been permitted to invade them and deposit its eggs. If time permits, the orchard should be examined the last of August, and the outer surface of the bark at the root scraped, to detect any black spots therein; for at this time, the minute worms in the bark can be more readily destroyed than at any subsequent period, and before they have

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difficult if not absolutely impracticable. On the whole, I think the best resort of any now in use, is that which is most commonly practised, namely, opening the burrow with a chisel or a stout bladed knife, to where the worm lies, and destroying "the villain." Experience shows that the wound thus made in the tree is of little account, as it readily heals, and injures the tree far less than does a continuance of the worm therein. Even where three, four, or five worms are cut out of one small tree, the vigor with wnich it starts forward immediately afterwards sufficiently attests the benefit which has been rendered it.

But when I came to examine the situation of this worm and the construction of its burrow, a remedy suggested itself to me so perfectly simple and sure, and so easy of application, as I have found on trial, that I am surprised it has never before been proposed. It consists in scalding the worm by pouring hot water into the top of its burrow. The upper end of the burrow can easily be found by puncturing the bark with an awl, or even with a stiff pin directly above the orifice where the castings have been ejected. It is commonly about three inches above this orifice, but may be an inch less or a few inches more. It is discovered by the point of the awl readily sinking in much deeper here than it will elsewhere. Then, with the point of a pen-knife cut away the bark, which is already dead, which covers the upper end of the burrow, and scrape out the saw-dust like castings which are packed into this part of the cavity, loosening and removing them as far down as can conveniently be done. Then from a tea pot or other vessel having a small spout, pour hot water into the hole, at intervals as it soaks downwards, for a few moments, until you are certain, from its oozing out at the lower orifice, or otherwise, that it has reached the worm sufficiently to kill it. By cutting downwards into the wood, and extracting the worm, a few minutes after this operation, any one can satisfy himself that the culprit is, as Patrick says, "killed dead," and that

> "A kettle of scalding hot water injected
> Infallibly cures the timber affected,
> The worm it will die and the tree will recover."

Indeed it is quite probable that merely opening the upper end of the burrow, in the manner above described, so as to permit the

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previously dwelt. On laying open one of these burrows I find it is more than an inch in length and all its lower part is filled

and blocked up with the fine sawdust-like castings of the worm. Thus when the worm is destined to lay torpid and inactive during the long months of winter, it has the forethought, so to speak, to place itself in a safe and secure retreat, within the solid wood of the tree, with the hole leading to its cell plugged up, so as effectually to prevent any enemy from gaining admission to it.

Still, this worm is not able to secure itself entirely from those parisitic insects which are the destroyers of so many other species of its race, and which, as is currently remarked, appear to have been created for the express purpose of preying upon those species, in order to prevent their becoming excessively multiplied. We should expect that this and other borers, lying as they do beneath the bark or within the wood of trees, were so securely shielded, that it would be impossible for any insect enemy to discover and gain access to them, to molest or destroy them. But among the specimens sent me by Mr. Barry, is one, where the worm has been entirely devoured, nothing but its shrivelled skin remaining, within and upon which are several minute maggots or footless little grubs, soft, dull white, shining, of a long egg-shaped form, pointed at the tip and blunt in front, their bodies divided into segments by very fine transverse impressed lines or sutures. They are about one-tenth of an inch long and 0.035 broad at the widest part. These are evidently the larvæ of some small Hymenopterous or Bee-like insect, pertaining, there can be little doubt, to the family CHALCIDIDÆ—the female of which has the instinct to discover these borers, probably in the earlier periods of their life when they are lying directly beneath the bark, and piercing through the bark with her ovipositor, and puncturing the skin of the borer, drops her eggs therein, which subsequently hatch and subsist upon the borer, eventually destroying it. These minute larvæ were forwarded to me under the supposition that they were injurious to the Apple tree, whereas, by destroying these pernicious borers, it is evident they must be regarded as our best friends. This fact illustrates

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is a smoothish faintly-marked line, and on each side of each segment is an irregular triangular indentation, from the inner angle of which a faint impressed line extends inwards. On each side, beneath, is an impressed, longitudinal line. There are no conical projecting points at the apex of the last segment.

These borers, sent to me as above stated, have not yet completed their transformations; but they will in all probability remain in their present cells in the wood, and be changed to pupæ the coming spring, from which the perfect insects will issue the latter part of May and during the month of June. And there can be little doubt that they will prove to be the species named by Fabricius *Buprestis femorata*, which species pertains to the modern genus *Chrysobothris*. This insect may be met with in all parts of our country. The natural place for its larva is in the White oak, and it is probable that being deprived of a sufficient supply of this wood, in which to deposit its eggs, in consequence of our forests being so rapidly and extensively cut down, this insect has been obliged to resort to the Apple and Peach trees. Dr. Harris speaks of meeting with it upon and under the bark of Peach trees, and I have captured it upon the Apple tree. Professor Kirtland, of Cleveland, Ohio, doubtless alludes to this species, (Downing's Horticulturist, vol. ii. p. 544,) when he says, "Our Apple trees are often injured by the larvæ of the *Buprestis*, which will girdle out extensive portions of the bark and young wood." This, moreover, is in all probability the beetle of which a wood cut illustration is given in the Ohio Cultivator, vol. x, page 242. Although no description of the insect or its larvæ is given, the figure presents more points of resemblance to *C. femorata* than to any other common American species. The following interesting particulars, there stated, sufficiently indicate that this beetle will be liable to do great damage in our orchards. The editor says, "The late Dr. Barker, of McConnellsville, (Morgan county, Ohio,) called our attention to the injury done to his Apple trees, by the beetle represented above, several years ago. It was in the month of July, and large numbers of these beetles were seen running up and down the trunks and branches of the trees, while beneath the bark extensive ravages of the larvæ were found. We observed, however, that these injuries seemed in nearly or quite all cases to have commenced where the bark had previously been

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killed from some other cause, and were almost invariably on the south side of the trees. We have since found occasional marks of these insects in other orchards, but never where the trees appeared to have been in perfect health previous to their attacks.' This beetle, however, is by no means limited to old and decaying trees, as the observations of the editor of the Ohio Cultivator leads him to infer. The sections of wood sent me by Mr. Barry are from young and thrifty Apple trees; and it occurs in Oaks also, of this character, as well as those which are aged and perishing.

Like other species of its family, the Thick-legged Buprestis is variable in size, measuring from four to five tenths of an inch in length, and about two-tenths in width. It is of a black or greenish black color, polished and shining, with the surface rough and uneven. The head, and sometimes the thorax, and the depressed portions of the elytra, are of a dull coppery color. The *head* is sunk into the thorax to the eyes, is densely punctured, and is clothed in front with fine white hairs, which are directed downwards. Upon the middle of the top of the head is a smooth, raised, black line, with a narrow impressed line through its middle, a mark which serves to distinguish this from some of the other species which are closely related to it. The *thorax* is much more broad than long, and is widest forward of the middle. Its surface is covered with dense, coarsish punctures, which run into each other in a somewhat transverse direction. It is also somewhat uneven, with slight elevations and hollows, but has not two smooth raised lines on its middle and anterior part, which are met with in another species very similar to this, the Tooth-legged Snapping-beetle, (*Chrysobothris dentipes*, Germar.) The *elytra* or wing-covers present a much more rough and unequal surface than any other part of the insect. Three smooth and polished raised lines extend lengthwise of each wing-cover, and the intervals between them are in places occupied by smaller raised lines, which form a kind of net-work; and two impressed transverse spots may also be discerned more or less distinctly, dividing each wing-cover into three nearly equal portions. These spots reach from the inner one of the three raised lines nearly to the outer margin, crossing the two other raised lines, and interrupting them more or less. They are commonly of a cupreous tinge, and densely punctured, but are more smooth than the other portions of the surface. A smaller and more deeply impressed spot may commonly be found in the space next to the suture, and forward of the anterior spot, of which it is, as it were, a continuation. The wing covers are rounded at their tips, so as to present a slight notch at the suture when they are closed; and the outer margin, towards the tip, has several very minute, projecting teeth. When the wing-covers are parted the *back* is discovered to be of a brilliant bluish-green color, and thickly punctured, with a row of large impressed spots along the middle, one on each segment, and half way between these and the outer margin is another row of smaller impressed dots, having their centres black. The *under side* of the body and the legs are brilliant coppery, the feet being deep shining green their last joint and the hooks at its end black. Here also the surface is everywhere

thickly punctured, the punctures on the venter or hind part of the body opening backwards. The last segment has an elevated line in the middle at its base, and its apex is cut off by a straight line, in the middle of which is commonly a small projecting tooth. The anterior thighs are remarkably large, from which circumstance this species has received its name, and they have an angular projection on their inner sides, beyond the middle. The tibiæ or shanks of these legs are slightly curved.

The remedies for destroying this borer must necessarily be much the same with those already stated for the common borer or Striped Saperda. They consist essentially of three measures: 1st, coating or impregnating the bark with some substance repulsive to the insect; 2d, destroying the beetle by hand picking; and 3d, destroying the larva by cutting into and extracting it from its burrow.

As it is during the month of June and fore part of July that the beetle frequents the trees for the purpose of depositing its eggs in the bark, it is probable that whitewashing the trunk and large limbs, or rubbing them over with soft soap, early in June, will secure them from molestation from this enemy. And in districts where this borer is known to infest the Apple trees, the trees should be repeatedly inspected during this part of the year, and any of these beetles that are found upon them should be captured and destroyed. It is at midday of warm sunshiny days that the search for them will be most successful, as they are then most active, and show themselves abroad. The larvæ, when young, appear to have the same habit with most other borers, of keeping their burrow clean by throwing their castings out of it through a small orifice in the bark. They can therefore be discovered, probably, by the new sawdust-like powder which will be found adhering to the outer surface of the bark. In August or September, whilst the worms are yet young, and before they have penetrated the heart-wood, the trees should be carefully examined for these worms. Wherever from any particles of the sawdust-like powder appearing externally upon the bark, one of these worms is suspected, it will be easy, at least in young trees, where the bark is thin and smooth, to ascertain by puncturing it with a stiff pin, whether there is any hollow cavity beneath, and if one is discovered, the bark should be cut away with a knife, until the worm is found and destroyed. After it has penetrated the solid

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Badly as this insect is infesting our orchards in the State of New-York, it is scourging our western neighbors far more severely. In those districts bordering upon Lake Michigan, in particular, it is at the present time making the most appalling havoc, surpassing anything which has hitherto been recorded of this species. Scarcely a tree is free from them, and unless measures for destroying the insect are resorted to, the tree is sure to perish within a few years after it is invaded.

George Kimball, Esq., of Kenosha, Wisconsin, gave me the following interesting account of the introduction and spreading of this insect among his trees: "The bark-louse appears to have been introduced here in the year 1840 by four young sweet apple trees which my son brought from Cleveland, Ohio. These trees dwindled, their limbs had a black appearance, and the bark was everywhere covered with these lice, crowded upon and overlapping each other, so that they would peel off in large scales, and be washed off by rains, clusters of them adhering together in sheets, till finally, in the year 1848, these trees died, having grown not more than an inch annually for the three last years. And the same lice had now spread upon and were covering my other trees more or less. All my trees became badly infested, the sweet ones being overrun more than the others. Some of them took up their abode upon my pear trees also, particularly upon a small tree which I happened to have, bearing hard worthless fruit; this was covered with them as badly as some of my apple trees. We could find nothing in books, or in agricultural or horticultural papers which seemed to apply to this louse, and hence were thrown upon our own ingenuity to combat it. Efforts were made in this village to organize a society, with an admission fee of ten dollars, to raise a fund with which to encourage experiments, and handsomely reward the person who discovered the best remedy. A secret remedy, which proved to be worthless, was extensively sold all over this section of country for one dollar to each person. Hoping that my younger and more vigorous trees would outlive the pest, I dug up and threw away all my old trees, upwards of thirty in number. I have now about one hundred and fifty trees, none of them over twelve years old, and

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trees,) first by Modeer, (Act. Gothenb. i. 22,) by which name it has been noticed by Geoffroy, and authors generally since. Gmelin refers to the same insect, at least as it has been generally supposed, under the name *Coccus conchiformis*, or the Shell-form or Oyster-shaped Bark-louse. The specific name, *arborum linearis*, if really designed for the Bark-louse upon the Apple-tree, is a very unfortunate one, as this species is not linear in its form, but tapering, and nearly all the other species of Bark-lice infest trees as well as this. Costa has recently reformed this name, by omitting from it the redundant word *arborum*. But if the original name is to be rejected, in consequence of its non-conformity to the present rules of scientific nomenclature, Gmelin's name *conchiformis* must assuredly take its place, in consequence both of its priority and its appropriateness. Some of the latest authorities, however, regard the *conchiformis* and *linearis* as being two distinct species. This threw such doubts upon the question which of these names should be adopted for our Apple Bark-louse, provided it was identical with the European insect, as I felt myself scarcely competent to resolve, with the few authorities upon these insects which I have at hand. As Mr. Curtis, the distinguished British entomologist, now president of the Entomological Society of London, had communicated a series of articles upon several of the species of this genus, to the third volume of the Gardener's Chronicle—a volume to which I have not access—and as I had heretofore had some correspondence with him, I recently enclosed to him for his opinion, specimens of our Apple Bark-louse, and also a seemingly identical species found upon our Red osier, (*Cornus sericea.*) The following is an extract from his reply: "I have carefully examined your specimens. They are identical, and are the *Coccus arborum linearis*, Geoff., and I believe the *C. conchiformis* of Gmelin, which is in that case a synonym. You are right in placing them in the genus *Aspidiotus*." I trust this information will satisfy some of my western friends who have been reluctant to credit my statement that their insect is not new, but is common here at the east, and also in Europe.

Mr. Rennie speaks of having found this species in great plenty upon currant bushes. I have never met with it upon the culti-

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Under these scales I have also repeatedly met with a small maggot, three hundredths of an inch long, or frequently much smaller, of a broad oval form, rounded at one end and tapering to an acute point at the other, soft, of a honey-yellow color, slightly translucent and shining, with an opake brownish cloud in the middle, produced by alimentary matter in the viscera, and divided into segments by faintly impressed transverse lines. This is probably the larva of some minute Hymenopterous insect, specially designed by Providence for destroying the eggs of the bark louse. That these eggs are its food is shown by the fact that when the maggot is small a number of eggs are found under the scale with it, when it is larger the eggs are fewer. The individual from which the above measurement and description was drawn had but two eggs remaining for it to consume. Whether the maggot be larger or smaller it, with the eggs, appears to completely fill the cavity beneath the scale, and I have only met with this parasite upon thrifty trees, where each scale had a large number of eggs beneath it. It doubtless remains beneath the scale during its pupa state, and then makes its exit by perforating a small round hole through the scale. Scales which are thus perforated may frequently be met with. Our cut represents a scale magnified and perforated for the escape of a parasite, the short line on the right hand side of the figure indicating the natural length of the scale.

The eggs are somewhat less than the hundredth part of an inch in length; they are of a regular oval shape, about twice as long as broad, smooth but not shining, opake, most of them of a white color, others dull pale yellow.

As early as the 12th of May I have found individual larvæ hatched, and running about with much activity among the eggs, but remaining under the scale for protection. It is not till about a fortnight later that the eggs mostly become hatched, and the young crawl out from under the scale and scatter themselves over the bark. To the naked eye they appear like minute white dots, uniformly diffused over the smooth bark of the twigs, and appearing like natural white points or glands of the bark. A person to whom I once pointed out these white specks was reluctant

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washes are sure to be. The fibres of the tobacco, diffused through this preparation, cause a portion of its strength to remain wherever it is applied, longer than any application which is wholly soluble in rain water can do. He first trims the trees well, so that every twig can be reached with the paint brush, and applies this preparation before the buds have much swelled in the spring. Two men, strictly charged to take their time, and be sure that they painted the whole of the bark to the end of every twig, were occupied a fortnight last spring in going over his hundred and fifty young trees. When I saw his trees, the latter part of September, this composition was still plainly to be seen upon the rough bark of their trunks and upon the under sides of their limbs, resembling a whitish mouldiness of the bark. The trees had grown very thriftily, and yielded well, whilst only a single scale could here and there be found upon the twigs of the present year's growth, all the older parts being entirely free from them. Although trees perishing with lice were standing in the adjacent yards and gardens, it seemed these insects preferred starvation at home rather than being poisoned by invading these trees, hence it appears that one thorough application of this preparation is sufficient to destroy all the insects upon the trees, and to protect them from invasion from neighboring trees for a period of two years; for free as the trees were from these insects in September, there can be no call for a renewal of this composition upon them the coming spring.

Wounding the twigs and causing them to wither and fall; a very large black fly with four glassy wings, with orange-colored ribs and red eyes.

The SEVENTEEN-YEAR LOCUST, *Cicada septemdecim*, LINNÆUS.

On some accounts the Seventeen-year Locust is the most remarkable insect of which we have any knowledge. The unusual length of time which it requires for completing its growth, and the perfect regularity with which every generation, numbering many millions of individuals, attains maturity, so as to come forth at the end of seventeen years, the entire brood hatching within a few days' time, has caused this more than any other American

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Southern Illinois, and the Creek Indian country west of Arkansas, these last having been gathered by my friends, Robert W. Kennicott and William S. Robertson. They show that from one end of this vast stretch of territory to the other, the species is quite uniform in its size and marks. Mr. Robertson, writing from Tullehassie, under date of May 24th, says: "I have heard the Seventeen-year Locusts for ten days past, but they are not plenty here. At Park Hill, however, twenty-five miles south of this, in the Cherokee country, they are very numerous, and in these hungry times, occasioned by the severe drouth of last year and this spring, the people are glad to gather and eat them."

A fourth brood, and which has been the oftenest and most fully noticed of any, reaches from Pennsylvania and Maryland to South Carolina and Georgia, and, what appears to be a detached branch of it, occurs also in the southeastern part of Massachusetts. It was observed as long ago as 1715, and its reappearance has been recorded seven times since, the last one of which was in the year 1851. It will consequently reappear in 1868.

A fifth brood extends from Western Pennsylvania, through the valley of the Ohio river, and down that of the Mississippi to Louisiana. This appeared last in 1846, and will therefore reappear in 1863.

A sixth appeared the past year around the head of Lake Michigan, and as far east as to the middle of the State of Michigan, and extended west across Northern Illinois and onwards, an unknown distance, into Iowa. It reached south at least as far as Peoria, and north to the line of Wisconsin. Mr. M. P. Weter, of Tirade, Walworth county, Wisconsin, informed me that a narrow strip, but about a mile in width, extended through his neighborhood, and onwards, north, for a distance of at least twenty miles.

A seventh is recorded as having appeared in the western part of North Carolina in the year 1847.

An eighth was noticed at Martha's Vineyard, Mass., in 1833.

A ninth was noticed in the valley of the Connecticut river, in Massachusetts, in the years 1818 and 1835.

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recognized, though at a distance of some twenty rods. As it was repeated at short intervals, I was able to draw near and capture the songster, who had come out some days in advance of the main swarm. The note, which is uttered only by the males, is peculiar, and may be represented by the letters *tsh-e-e-*E-E-E-E-*e-ou*, uttered continuously, and prolonged to a quarter or a half minute in length, the middle of the note being deafeningly shrill, loud and piercing to the ear, and its termination gradually lowered till the sound expires. In a wood in the vicinity of Ottawa, Illinois, on the 22d of September last, I heard the note of a cicada identical with the above, except that the syllables were short, and uttered at regular brief intervals, thus, *tsheeou*, *tsheeou*, *tsheeou*, much resembling the creaking of a grindstone when in want of grease. This was probably some autumnal species, a native of that vicinity; but it might possibly have been a straggling individual of the seventeen-year locust, which had not completed his transformation until three months after his due time, and which uttered his notes in this hurried, impatient manner, upon finding himself "solitary and alone."

Circumstances may cause this insect to appear and disappear somewhat earlier at some of its visits than at others. Mr. Wight, editor of the Prairie Farmer, informs me that the Illinois brood last year had mostly disappeared upon the fourth of July, whilst the preceding visit of this same brood was in vigorous life and activity at that date, as was recollected from the fact that a particular neighborhood had met together to commemorate the day, in a barn, which was the most spacious edifice in the vicinity, and the company were much annoyed in their festivities by the incessant din which these locusts kept up in and around the building.

This insect dwells entirely in timber land, never inhabiting fields which have been cleared seventeen years, or the prairie lands of the west. It was noticed the past year as being more wide-spread in many places in Illinois than it was on its previous visit. Fruit or forest trees, wherever they had been planted upon the prairies, were seventeen years ago destitute of these in-

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size, and came out of the ground upon the same day, with those which appeared in the timber lands; nor were they any more plenty beneath two or three shade trees standing in the cleared grounds than in other parts of the fields. In other places I was also informed of their coming from the earth plentifully in fields which had been cleared several years. Indeed, the pupæ emerge in all situations, except where the ground has been wholly destitute of trees and shrubs for seventeen years or more. They even work their way out in the middle of the most solid and hard-trodden roads. This fact is noticed by Rev. Andrew Sandel in the first recorded notice which we possess of this insect, in 1715, (Medical Repository, vol. iv., p. 71,) and was also stated to me by different persons in Illinois. It serves to show the remarkable strength which the anterior legs of the pupa must possess to enable it to dig through ground so compacted.

It is in the night time that the pupa (of which the accompanying figures, taken from specimens of *C. rimosa*, give a view,) emerges from the ground. The warmth and dryness of the air by day would doubtless cause its exterior shell-like case to become stiff and crack open prematurely. Some of the pupa hatch upon the ground, near the holes from which they have emerged; others crawl up the sides of fences and upon bushes and trees, sometimes to a height of twenty feet. The pupa fixes itself securely by its feet, its thin shell-like covering cracks open anteriorly upon the back, and the inclosed insect withdraws itself therefrom, leaving the empty case adhering to the place where it was fixed.

The oak is the tree which the seventeen-year locust appears most to infest, for the purpose of depositing its eggs, and next to this is probably the apple tree. So numerous were these insects in several orchards in Illinois last June, and such injury did they threaten the trees by their wounds, that the proprietors were induced with poles and goads to whip and drive them from the trees. And B. S. Rollin, of Wyoming, Wisconsin, in the Wisconsin and Iowa Farmer of November last, (vol. vi. p. 254,) reports that in

his vicinity the oak and apple tree limbs were breaking off w every wind, at the point where they had been operated upon the locusts, and that some of the trees were badly injured here The editor of the Farmer, in commenting upon this communi tion, thinks that the damage will prove to be but slight, and i in reality be that "heading in" which is often serviceable to fi trees. But it must be rare that our apple trees can be benefi by any heading in, all experience showing that the perfectio the fruit requires that this tree should be kept well trimmed, as to permit a free circulation of air and light among its branch and the same condition of the tree is one of its best safegua against tree-hoppers, plant-lice, and many other insect enem which particularly prefer situations where the foliage is dense

In addition to the trees already mentioned, this insect depo its eggs in the poplar, the locust, the hazlenut, and probably all our deciduous trees and shrubs. The different species of w nut and hickory, however, are said to be exempt from its atta It will probably prefer those trees having the twigs thick and bust, to those in which they are slender and flexile; it has e been known, according to Dr. Harris, to commit its eggs to white cedar, but it is probable that pines and the evergre generally will be avoided by it.

Dr. Harris, (New England Insects, p. 184,) gives the follow description of the manner in which the female locust wounds twigs and deposits her eggs. They select those branches twigs which are of a moderate size. These they clasp on b sides with their legs, and bending their ovipositor downward an angle of about forty-five degrees, they repeatedly thrus obliquely into the bark and wood in a longitudinal direction the same time putting in motion the lateral saws of the oviposi and in this way detach small splinters of the wood at one e and turn them upwards, so as to form a kind of lid or cove the perforation. The hole is bored in a slanting direction, to pith, and by a repetition of the same operation, is gradu enlarged, forming a longitudinal fissure of sufficient exten receive from ten to twenty eggs. The lateral pieces of the

positor serve as a groove to convey the eggs into this nest. They are placed in pairs side by side, but separated from each other by a portion of woody fibre, and they are fixed into the limb somewhat obliquely, so that one end points upwards. When two eggs have been thus placed, the ovipositor is withdrawn for a moment, and is then inserted again, dropping two more eggs in a line with the first; and this operation is repeated until the fissure is filled from one end to the other. The insect then removes a short distance, and commences making another nest, to contain two more rows of eggs. She is occupied about fifteen minutes in making one of these slits and filling it with eggs; and frequently fifteen or twenty of these nests are formed upon one limb. Fifty nests have been counted in one instance, upon a single limb, extending along in a line, each containing from fifteen to twenty eggs in two rows—the whole appearing to be the work of one insect. After one limb is sufficiently stocked, the insect passes to another. She thus goes from limb to limb and from tree to tree, until her supply of eggs, consisting of four or five hundred, is exhausted. And by her assiduous labors in thus providing for a succession of her kind, she becomes so wearied and weak as to fall to the ground, in attempting to fly, and soon dies.

From the wounds which are thus made in the limbs, the sap exudes, often profusely. This attracts numerous ants to the spot, to regale themselves upon this sweet fluid. The naturalist, Pontedera, who gave some attention to the operations of the insects of this family, says that when the eggs have been deposited, the insect closes the mouth of the hole with a gum, capable of protecting them from the weather. M. Reaumur thinks this is only a fancy, as he could discover nothing of the kind. But to us it appears quite probable that what Pontedera supposed was a gum which had been deposited by the parent insect, was the dried juice of the twig.

The fissures which the female makes, in which to deposit her eggs, are not the only wounds which this insect occasions upon the trees. It inserts its sharp beak into the bark for the purpose of sucking the sap, this being the nourishment on which the locust subsists. Although some of my correspondents express doubts

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The two outer anastamosing veinlets of the fore wings are black, with only a slender orange line along their middle, and are margined with smoky, forming a W-shaped mark, which superstition to this day, continues to a slight extent, to regard as portending "war." The small opake orange basal cell is black on its inner side, and the elevated vein running from the outer side of this cell to the base of the wing is also deep black, with a large black spot behind and a small one before its basal extremity, as seen when the wings are spread. The folded inner part of the hind wings is margined with smoky, and on its apical side with black.

Characters drawn from the veins of the wings, by which to discriminate the species, would appear from this insect to be of little value. Thus, the first or outermost veinlet, or cross-vein as it is termed by Mr. Walker, is separated from the second veinlet about the distance of its length in the male, but often by double this distance in the female. The second veinlet is slightly curved in the male, whilst in the female it is straight, with a slight curve towards its inner end, and in one specimen before me it is abruptly bent, forming an angle of less than 135 degrees. It is of the same length with the first veinlet commonly, but is sometimes much longer.

It would be interesting to carefully study over a large collection of specimens of the seventeen-year locust, belonging to separate broods of this insect, and gathered from different localities, to ascertain if some marks cannot be detected by which the individuals belonging to each brood can be discriminated from the others.

When newly hatched from the pupa, the locust is soft, heavy, and sluggish in its motions. At this time, as I am informed by Mr. Kennicott, it is preyed upon by our large species of dragon-flies or darning-needles (*Libellulidæ*), which seize and devour numbers of them.

Mr. W. S. Robertson informs me, that the Indians make the different species of Cicada an article of diet, every year gathering quantities of them, and preparing them for the table by roasting them in a hot oven, stirring them until they are well browned.

Accounts of persons having been stung by the seventeen-year locust, and dying in consequence of the wound, are current in different sections of our country, every time this insect makes its appearance. The past summer, a newspaper article gave the name, residence, and particulars of the death of a young lady in Illinois, who was thus stung, stating the attending circumstances so definitely as to leave no doubt that the story was authentic. And it is possible that the sharp beak of this insect, or the ovipositor of the female, may inflict a puncture so extremely painful

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the tree having its peculiar species. Thus upon the apple tree, we have already noticed the Apple root blight, a species of woolly louse producing excrescences upon the roots, and the Apple Bark louse. There is also the tree blight, (*Eriosoma lanigera*,) which infests the trunk and limbs. We come now to consider this species, which affects the young succulent ends of the twigs and the leaves, and another species which we have observed upon the leaves, which appears to be distinct from the *Mali*, though probably possessing the same habits. We thus have five kinds of these vermin infesting our apple trees.

In many instances it is extremely difficult to determine whether the lice upon our American trees and plants are identical with those which occur upon the same or similar vegetation in Europe, the descriptions given of them by the old authors being so very brief, and often drawn up from a superficial examination of the species. And I have heretofore been in much doubt whether this common Aphis of our apple trees was the same insect which similarly infests the orchards of Europe, named *Aphis Mali* by Fabricius; that species being described by him, by Kollar and others, as being of a green color, whereas, our insect in its winged state is almost invariably black, its abdomen only being green. But having recently been favored with specimens of the European insect, from my esteemed friend Dr. Signoret, of Paris, and also on comparing our Aphis with the description given of the European by M. Amyot, (Annals Entom. Soc. France, 2d series, vol. v. page 478,) and the detailed account of the veins of its wings, furnished by Mr. Walker, (List of British Museum, page 985,) not the slightest doubt remains in my mind, but that the insects of the two continents are identical, and that upon this side of the Atlantic it has been introduced by the trees brought hither from Europe.

The history of this species and its annual career is as follows: Early in the spring, sunk deep in the cracks and crevices in the bark of the apple trees, may be seen numbers of small, oval, black, shining eggs, from which these insects are produced. Scraping off the dead bark of old trees, and coating the trunks of all the trees with whitewash at that period of the year is a practice of much utility, since thereby most of the eggs of this and some other

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every crevice of the bark, in many places piled up and filling the cracks, and others were irregularly dropped among the lichens and moss growing upon the bark—every unevenness of the surface, or wherever a roughness afforded a support for them, being stocked with as many as could be made to cling to it. The eggs were then of a light yellow or green color, and were so slightly glued in their places that it was evident by far the largest part of them would be washed away by rains or brushed off by the driving snows of winter. But I by no means anticipated such a great diminution in their numbers as actually occurred. I should judge that in the spring several hundreds had disappeared for every one that then remained.

The present year (1855) the apple plant-louse, as well as species infesting willows and some other trees, appears to be unusually prolific, and has excited much alarm among many owners of young orchards, for it is young thrifty-growing trees which are most infested by it. In one instance a gentleman came to me a distance of twenty five miles, bringing specimens of this insect, to learn its name and what measures he could resort to for destroying it, and in the Country Gentleman of July 19, (vol. vi. p. 48,) is a letter from William Gilchrist, of Hebron, Washington county, giving an account of its depredations upon his trees, many of which were in danger of perishing unless they were relieved from these vermin. Norman Briggs, Esq., of Schaghticoke Point, informs me that particular varieties of the apple appear to be much more infested by this insect than other varieties; thus the Sour Bough, wherever it was growing in his grounds, was overrun with lice, whilst among the kinds least affected were the Northern Spy and Red Astrachan.

As already stated, this insect locates itself upon the green succulent shoots at the end of the twigs, upon the under surface of the leaves, and upon the leaf-stalks. The leaves being of a comparatively stiff, leathery texture, do not become wrinkled and plaited like those of the peach, the snowball, and many other shrubs and trees; they, however, curve backwards, often to such an extent that the point of the leaf touches the stalk on which it grows, thus furnishing to the insect a comparatively secure covert

appearance, as though they were coated with varnish. For the purpose of regaling themselves upon this honey dew, or to destroy the aphides, different species of ants, flies, and quite a number of other insects are always found in company with them. Several of these, and their habits, will be more particularly considered at the close of our account of this species.

Grouped together, and covering the surface of the twigs and leaves which they infest, these lice are found in all stages of their growth. When newly born they are almost white, but soon become pale dull greenish yellow, which is their prevailing color during the larva period of their lives, the antennæ, the nectaries, the knees and feet being dusky, and sometimes black. The mature females are generally without wings, and their bodies are much broader than in the larva state, being shaped like an egg, the smaller end forward. These, as well as the winged individuals, vary greatly in their colors and marks, as will be seen from the description of this species and its varieties which we here give.

The WINGLESS FEMALES are somewhat less than the tenth of an inch long, and are of a pale yellowish green color, with the head frequently more yellow than the body. Stripes of a deep green color are commonly present upon the back, or sometimes there is a single stripe in the middle, and transverse ones at each of the sutures or impressed lines between the segments, but these transverse stripes do not extend to the margin upon either side. The eyes are black. The beak, by which it pierces and sucks the juices of the twigs and leaves, the antennæ, and the legs, are whitish, their tips black or dusky, and the knees also are commonly dusky. The nectaries are equal in length to the distance from their bases to the tip of the abdomen, and are dusky or white, with their outer ends black. Protruding from the extremity of the abdomen is a short tail-like appendage, nearly half as long as the nectaries, and of a black color. But in females examined in autumn, at he time of depositing their eggs, this appendage was not observed. I hence infer it pertains only to those which bear living young.

The MALES and the WINGED FEMALES appear to be alike in their colors. They measure about 0.12 to the tips of the wings, this being double the length to the tip of the abdomen, or more. The head and thorax are of a coal black color, with the neck commonly green. The antennæ are inserted upon the front part of the head, between the eyes. They are black, slightly tapering towards their tips, scarcely as long as the body, and slightly covered with very fine short hairs. They are seven-jointed, the two basal joints short and thick, almost as broad as long; the third joint is longest of all, and often shows several slight equidistant constrictions, dividing it seemingly into several short joints; the fourth and fifth joints are equal, and each

Variety *b*, *nigricollis*. The neck not green, but of the same black color as the head and thorax. Common among aged individuals.

c, *thoracica*. The thorax dull green, with a black band farward of its middle. Young.

d, *fulviventris*. The abdomen pale dull yellow instead of green.

e, *nigriventris*. The abdomen greenish black, with the row of black dots along each side, indistinct.

f, *immaculata*. The abdomen without any dots or darker colored marks.

g, *obsoleta*. The lateral row of black dots faint and scarcely perceptible.

h, *trisriata*. A row of black dots along the middle of the back, as well as upon each side of the abdomen.

i, *bivincta*. Two black bands towards the apex of the abdomen, on its upper side.

j, *tergata*. Abdomen above, with two black bands towards its tip, and three rows of black dots anteriorly.

Several specimens of Plant-lice which I gathered from the leaves of Apple trees, in Mercer county, Illinois, upon the 4th day of October last, and which at the time of capturing them I supposed were varieties merely of the common species which we have been considering, prove on examination to pertain to a different species. They are a size larger and of a shining black color throughout. In the common species the legs are uniformly pale with black feet and knees, the preserved specimen showing this character almost as distinctly as living individuals; in these specimens on the contrary the legs are entirely black, or at most brownish yellow at their bases in some instances. The wing-veins moreover differ notably from those of *Aphis Mali* in several points. They are more slender, and the fourth vein is relatively shorter and more strongly curved through its whole length. In consequence of this curvature it is nearer to the second fork at its base than at its tip. Two-thirds of the specimens which were captured at that locality coincide with each other in these differences. This fact would indicate this to be a more common species upon the Apple trees in Illinois than the *Aphis Mali*; but its darker color and larger size rendering it more conspicuous than that species may have occasioned a disproportionately large number of this species to be gathered. It may appropriately be named the Apple-leaf louse (*Aphis Malifoliæ*). The specimens show the following marks in addition to what has already been stated:

The APPLE-LEAF LOUSE measures 0.15 to the tips of its wings. The third vein of the fore wings is but slightly abortive at its base. The second and third veins are

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ready seen how repulsive to these insects the trees of Mr. Briggs, immediately became upon being washed with a solution of soda.

Tobacco water, prepared by pouring a gallon of boiling water upon a quarter of a pound of tobacco, and used in the same manner as above directed in the case of soap suds, has been reported as a certain remedy. Moses L. Colton, of West Bolton, Vermont, says (Country Gentleman, vol. vi. p. 78), a nursery of about twelve hundred Apple trees became so infested with lice that most of the trees turned black and the leaves withered and died, until he tried tobacco water, prepared, however, much stronger than above recommended. This completely destroyed the insects, and the leaves they had killed having fallen off, new ones started out. For six years past he has been obliged to resort to this more or less every year, in his nursery and orchard, and he finds it an effectual remedy when made strong enough. He prepares a decoction, made by boiling four or five pounds of tobacco in water sufficient to nearly fill a tin pan.

The remedy which is admitted on all hands to be the most effectual, and sure of ridding infested vegetation of every aphis upon it, is the smoke of tobacco. But unfortunately this can only be resorted to in the case of rose bushes and other low shrubs or small trees. For enclosing a shrub to be operated upon, gardeners abroad use a large box, a hogshead, or a kind of small tent humorously described some time since by Prof. Lindley (Gardener's Chronicle, July 11, 1846,) under the name of a "parapetticoat," made by sewing the upper end of a wornout but entire petticoat to the outer edge of an opened parasol that has been thrown aside, any holes in its cover being first mended, and a staff six feet long securely tied to its handle. The petticoat being then raised up in folds to the parasol, the staff is inserted into the ground under the centre of the infested shrub, and the petticoat is drawn down to surround and inclose all of the foliage of the shrub. The interior is then filled densely with tobacco smoke for the space of five or ten minutes, or long enough to insure the fumes penetrating every curl, plait and crevice of the foliage. The apparatus is hereupon removed, and the foliage immediately washed with lukewarm water from a large syringe,

few of the empty, shrivelled skins, adhering to the leaves, was all that remained.

We have seen the prodigious increase of these creatures which would take place if they were allowed to multiply to the extent they are susceptible of doing. Such is their fecundity, that if no check was given them, it is evident that from the cedars of Lebanon to the hyssop upon the wall, every leaf and spear of vegetation springing from the bosom of mother earth, would be thronged and blighted by the countless myriads which would be produced in the space of a few months. Fortunate indeed is it for man that in this, as in so many other instances, Providence has furnished remedies for an evil which would otherwise be so calamitous—remedies which are far more effective than any which human skill has been able to devise. As this family of insects appears to outstrip every other in the rapidity with which it is liable to multiply, to keep it restrained within its appropriate bounds means more efficient are here requisite than elsewhere, and we accordingly find that the aphides have enemies more numerous, more active and inveterate, than any other group in this department of the works of nature. Whole families of other insects, some of them numerous in species, appear to have been called into existence chiefly for the purpose of feeding upon and destroying these vermin, and an acquaintance with the several kinds of insects which, in our country, occur in company with these pests of vegetation is quite important, that we may know which to destroy or pass by in indifference, and which to cherish and protect, and call to our aid in instances where nature herself does not furnish them in sufficient numbers.

By far the most constant comrade of the aphis is the ant. One species or another of this family of insects (FORMICIDÆ) is almost invariably found wherever a colony of plant-lice have established themselves. By this means we frequently discover colonies of these insects which would escape our search if our attention was not attracted by these larger sized sable colored attendants. The fondness of the ant for sweet substances is well known, as it is always prowling about cupboards and other places where saccha-

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Latr.) which excavates its burrows in the trunks of old and decaying trees, in which it is sometimes met with in countless numbers. And I am not without suspicions this may be a variety of that species rendered darker in its colors by being more exposed to the light and air. It is much darker colored than the species alluded to, its thorax being deep chestnut red, and its legs black, with the thighs tinged with chestnut red, but always darker than the thorax, instead of being of the same color as we generally find them in *F. herculeana*. These and other differences to be specified appear to be constant, occurring in all the specimens which I find attending the aphides of the apple and other trees, and induce me to regard it as a distinct species, which I propose to distinguish under the name of

The NEW-YORK ANT (*Formica Novæboracensis*). The neuters are uniformly about 0.30 long. The body and legs, as in *F. herculeana* are covered with very short fine appressed hairs, which on the head and body are interspersed with a few longer erect bristles, whereof several are clustered upon the elevated posterior part of the thorax, others stand out from the edge of the wedge like scale at the base of the abdomen like eye-lashes, and others are arranged in transverse rows upon the abdomen, of which there is one upon each side of each suture. The scale at the base of the abdomen, instead of being the same red or yellow color as the thorax, or only somewhat dusky at its summit, is here black, with its base only sometimes dark red. The posterior face of this scale in *F. herculeana* has a broad shallow concavity, like the hollow of the hand, whilst here it is merely flattened, or in some instances has a small concavity in its middle. In the preserved specimen, the edges of the abdominal segments, especially the basal one, are often membranous and of a pale dull yellow color; and a variety occurs in which the anterior suture is impressed or constricted.

In addition to ants, different kinds of wasps are common, hovering about the foliage of trees infested with plant-lice. Most of these appear to be attracted to them on the same errand with the ants, namely, to regale themselves upon the honey-dew, without molesting them further than to obtain this fluid. Thus I have observed our common Blue wasp, (*Pelopœus cœruleus*, Linnæus) the base of whose abdomen is contracted into a long slender penduncle, standing beside a colony of lice, and turning its head from side to side, gently touching their backs with its antennæ, hereby tickling and causing them to eject their honey dew, and their mouths following in the track of the antennæ, sipping up this fluid. Our common hornet or "yellow jacket" (*Vespa*

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serve to paralyze and stupefy her victim without killing it. It remains alive, but lies perfectly still and passive. The insects thus prepared are stowed away in the cells of the wasp as skillfully and compactly as the most expert packer in our slaughter houses fills his barrels. The farmer in repairing his fences will sometimes notice on splitting a decayed rail or stake, holes excavated therein and filled with young spiders, commonly of bright beautiful colors, which lie still and quiet, with only a slight quivering of their limbs, and is puzzled to know why, when thus broken in upon, they do not awake from their lethargy and run away, little suspecting the manner and purpose of their being accumulated there. And similar interesting and curious phenomena are passing under the farmer's eye daily, as he pursues his labors—phenomena which, if

> "In nature's infinite book of secresy
> A little he can read,"

aid in rendering his vocation beyond all comparison the most pleasant of any pursuit known to man.

In addition to ants and wasps several kinds of flies are common about cherry and other trees infested with plant-lice, being attracted hither, like the ants, for the purpose of sipping the sweet honey dew. One of these which is common during the month of July, and which will be most likely to attract notice, both on account of its prim neat appearance and the briskness of its gait when walking, is a small blackish green fly, with clear glass-like wings, which are crossed by three black bands. With its wings extended horizontally outwards, and often gently waving them up and down, with many abrupt turns it walks with a rapid pace up and down the limbs, and out upon the leaves in the vicinity of colonies of plant-lice. It is so tame that if the hand has hold of a limb it fearlessly walks around upon it. But the most curious part of its movements can only be seen with a magnifying glass. Watching its opportunity, when the ants have all left a herd of their cattle, the plant lice, unguarded, it runs in upon them, where they are crowded together as closely as they can stow themselves, and using its four hind legs for walking and turning around, with its two fore feet it gently scratches

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apical margin. These four bands upon the wings thus present a resemblance to the Roman numerals VII placed in an inverted position.

Another of our New-York species of *Tephritis* is closely related to the one now described, and probably has the same habits, though as I have met with it but seldom I have not had an opportunity to observe its movements. It is slightly smaller than the honey-dew fly, and like it has four black bands upon the wings, but here these bands are broader than the intervening spaces, and the two inner ones are confluent at their posterior ends, which do not reach the margin, whilst the two outer ones are confluent at their anterior ends, the bands thus resembling an upright letter V followed by an inverted one. The outer band, moreover, only touches the margin at its ends, and the wings are somewhat opake and of a white color, with only the axillary portion hyaline. The head and antennæ are light yellow, the face white; the thorax is black, with a milky-white stripe on each side and four broad ash-grey stripes above, the outer ones interrupted towards their anterior ends; the scutel is white and waxy, or porcelain-like; the abdomen is black, with the posterior edges of its segments whitish; the feet and shanks are yellow, the thighs black. I name this, in allusion to the marks upon its wings, the Lettered Tephritis (*T. tabellaria*).

In this connection I may observe that the fly named *Tephritis Asteris* by Dr. Harris (New England Insects, p. 498,) the larva of which infests the stalks of our American Asters producing globular swellings or galls therein, the size of walnuts, I have never met with. But a larger species, attacking the *Solidago* or golden-rod in the same manner, is quite common in eastern New-York. This fly, however, pertains to the genus *Acinia*, which has been separated from *Tephritis* by Desvoidy. Every farmer's boy has noticed how the slender, straight, smooth stalks of the golden-rod, growing with other weeds along old fences, quite often has one and sometimes two large round galls or ball-like swellings upon them, an inch in diameter, when the stalk above and below is less than a quarter of an inch. And many have had the curiosity to cut into these balls, and have found a plump well-fed white maggot in their centre. By the first of August the swellings have about completed their growth, although the worm within is as yet so small as to be scarcely perceptible to the naked eye. In the winter season, the leaves having fallen and left the stalks naked, these balls are more frequently observed: but at this period of the year most of them are found to be empty, with a round hole perforated in them, the worm having completed its growth and the winged fly having come out through this perforation the preceding autumn. But occasionally one of these balls

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Similar to the fly last described, in size and in the dots of its wings, is another species which Macquart regards as being the *Tetanocera guttularis*, of Wiedemann, although it differs slightly from his description. The genus *Tetanocera* belongs to a small group of the Ortalidan flies, differing from the other genera in having the second joint of the antennæ equal in length to the third joint, instead of being but half as long or less. Another character presented by all the species I have seen I do not observe noticed in books. The whole surface of the wings in our American Tetanocerides is finely striated with obtusely impressed lines and intervening ridges, which have a longitudinal direction towards the apex, and an oblique one towards the inner margin. These flies also subsist upon the honey-dew secreted by plant-lice, and, according to Desvoidy, their larvæ live, some in the unripe seeds of plants, others in the parenchyma of the leaves, stems or roots. In addition to the *guttularis* or Dotted-winged Tetanocera, we have, common in the State of New York, a species which is probably the Canadian Tetanocera (*T. Canadensis*) of Macquart, although the spots in its wings are sub-hyaline rather than white, and there are six only of these spots in the outer or costal cell. Associated with this species is frequently found another, similar to it in size and colors, but without any sub-hyaline spots in the dusky outer and apical margins of the wings. From that part of our State in which I have captured this species, I propose for it the name Saratoga Tetanocera (*T. Saratogensis*), as the mineral waters in this neighborhood have given to the locality a world-wide celebrity.

The dried specimen of this fly measures 0.23 to the tip of the abdomen and 0.30 to the end of the wings. The head above is golden yellow with two small rusty stripes on its fore part, a black spot at base and dot each side anteriorly, almost in contact with the eye, and a second one, also black, on the anterior margin, between the eye and the antennæ. Face silvery white. Antennæ light yellow, second joint longer than broad, with fine short black bristles along its upper and under edge; third joint tinged with brown, narrow and curved, its upper side being concave, its lower side convex and nearly parallel with the upper side, but slightly narrowing towards the apex, which is rounded; seta yellowish white, plumose. Thorax pale dull yellow, with a faint darker stripe each side of the middle, which stripes have an ash gray reflection when viewed from the front; clothed with a short black beard and a few long black bristles. Scutel ash gray with two nearly erect black bristles each side. Poisers (the little pedicels back of the insertion of the wings,

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reaches nearly or quite across the wing, the same that it does in *brevicornis*, whilst the apex of the wing is hyaline, without any vestiges of the dusky spot which occurs at the tip of the wing in Mr. Say's species. This species, which I name the Two-banded Stem-eye (*Sphyracephala sub-bifasciata*), was swept from grass at the base of the bluffs of the Illinois river, north of the city of Ottawa, the middle of last October. The Short-horned Stem-eye I first captured in Saratoga county, upon a cold windy day the latter part of May, between the leaves of the Skunk's-cabbage (*Symplocarpus fœtidus*), where it had probably retired for shelter—this being the same situation in which it was originally discovered by Mr. Say. Near my present residence, upon sunny days in the middle of April several were found associated with other flies and small bees, drinking the sweet sap of a newly cut maple, beside a stream of water at the base of a hill. It was more tame and less inclined to take wing when approached than any of the other flies. It seems limited to low shady situations, for other stumps upon the side and summit of the same hill, equally frequented by other flies, had none of this species. Near the same spot I once captured a specimen the last of October, resting upon a sand bank and basking in the sun. I state these facts thus particularly, as so little is known respecting the habits of this tribe of insects.

The Two-banded Stem-eye measures 0.15 to the tip of its abdomen. It is black and polished, the thorax brownish, the head and antennæ tawny yellow, and above on the middle of the head is a black spot. The legs also are tawny yellow, and the anterior thighs have a brown cloud-like spot upon each side, the anterior shanks being black. The middle legs have a brown band above and another below the knee. The hind thighs and shanks each have a brown band at tip. The wings are hyaline, with two dusky bands, the inner one short, as already described.

Prominent among these insects which subsist upon and destroy plant-lice are the Aphis-lions as they have been termed. These are larvæ of the Golden-eyed and Lace-winged flies, insects which form the Family HEMEROBIIDÆ in the Order NEUROPTERA. In their perfect state they are delicate slender-bodied insects, most of them less than half an inch long, with four large wings beautifully reticulated with veins, resembling the finest gauze or lace-work, whence they have received the name of Lace-wings, and with prominent globular eyes, which in many of the species have a

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mistaken them for vegetable productions of this kind.

Authors state that these eggs are deposited on leaves in clusters of ten or a dozen. I have a small willow leaf, upon the mid-vein of which, in a distance of one inch, twenty-three of these eggs are implanted, with seven more in a row close by the side of these, and five more in a second row, making thirty-five eggs in all, which undoubtedly was the stock deposited by a single individual in one night. But, however it may be with the European Lace-wings, certain it is that most of our American species of these insects do not place their eggs in clusters, but singly, one or two upon the edges or surface of the leaf. On a young apple tree in my yard, about eight feet high, I found these eggs the first of July, scattered over all the leaves. This tree had ten limbs, each about three feet long, and inserted upon the leaves of one of these limbs and its twigs I counted sixty-four eggs, and some probably escaped my notice. There was thus at least six hundred eggs upon that one small tree, all seeming to have been newly laid. And upon looking about, I discovered these eggs upon every other fruit and forest tree in my yards, and also upon the fillets of cloth by which newly set trees were tied to stakes for support, and two were even found attached to the iron trimmings of the latch to my office door. Being thus profusely scattered, it will readily be conceived what an amount of benefit these insects render us.

Having enjoyed favorable opportunities for inspecting the habits of this family of insects, and having noticed several points in their economy different from the observations which have heretofore been recorded, I give their history somewhat in detail, believing I shall thus render a more valuable contribution to the stores of human knowledge, than by occupying the same space with brief and superficial notices of a number of dissimilar insects.

From the accounts usually given in books it would be inferred that plant-lice were the exclusive food of the larvæ of this family of insects. It however is recorded that when in confinement and pressed with hunger, they will devour each other, and Mr. Curtis

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found, small inch-worms (GEOMETRIDÆ), about 0.10 long were hatched from them. The aphis-lion was at this time reposing at the top of the vial when one of these worms approached him. It was instantly seized, and the contents of its skin were sucked out with avidity, and he now commenced searching for another worm, probing every crevice in the cork stopper with his long jaws, and then walking down the vial, examining from side to side as he went along, until he came to the leaf at its bottom, now curled and shrivelled. He first crawled through every fold of this and then wandered over its surface, till coming to another worm, it was instantly seized. Thus sixteen of these newly-born inch-worms were consumed as fast as he could find them. They were seized indifferently by whatever part of their bodies was first accessible, and he was occupied four or five minutes in sucking out the fluids of each worm. As the skin became empty it was folded together, and rolled about between the tips of his jaws in a little wad, until the last particle of juice which it contained was exhausted. The skin was then adroitly wiped off from the tips of his jaws, and he started off in search of another worm, always carrying his head down close to the surface on which he was walking. Sometimes on coming to a skin which had already been sucked, it was taken up and rolled between the tips of his jaws again, as if to ascertain whether he had done his work well. When occupied in sucking a worm he stood still, adhering more by means of his tail than his feet, and there was a pulsating motion to his body indicating the satisfaction he felt in the act in which he was engaged. If another worm approached so near as to touch him at this time, he gave a sudden spiteful shrug, whereby it was frightened away. Only three worms remained when I introduced into the vial a cocoon of spider's eggs, with some of the young spiders hatched and crawling about the cocoon. These were immediately discovered by the aphis-lion, and leaving the worms he commenced devouring these small spiders in the same manner, each spider occupying him about half the length of time one of the worms did. The fine cobweb of the spiders appeared to adhere closely to his jaws, and to wipe this off, after finishing one spider, and before seeking another, he thrust his jaws repeatedly into the cocoon. Thus quite a number of the spiders were

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upon its pedicel, the other was laid upon the surface of a leaf in the vial. Next morning the latter was found flattened, and with only a small portion of fluid remaining in one end, and the plump size and green tinge of the young larva showed plainly that he had appropriated the missing contents of this egg to himself, and in a short time he approached the egg and inserting his jaws into it wholly exhausted it of its remaining contents under my eye. We thus see that the young aphis-lion will devour the eggs of its own species if they are placed within its reach. Is it not wonderful that the female knows this fact when no other insect possesses this knowledge! It would seem as though she had a recollection of what her own habits were in the larva period of her life, else why does not instinct inform other insects of this same fact, and excite them to similar artifices for placing their eggs beyond the reach of these destroyers?

A cocoon of spider's eggs was now introduced into the vial last spoken of, upon which the aphis-lion therein became plump and well fed. Three days after this the other egg elevated upon its pedicel, having been wholly undisturbed, hatched, and the infant larva from it approaching the older one, which was full three times its size, the latter to my astonishment passively and without manfesting the slightest resentment, permitted the newly-born infant to pierce him repeatedly with its jaws until life was extinct. His carcase was then shoved off from the leaf and abandoned, little if any of the juices being sucked from it. I can only account for this strange phenomenon—the young and weak destroying the strong—by supposing there had been some poisonous quality in the spider's eggs on which the older aphis-lion had fed, which had rendered him diseased and weary of life, for he even seemed to solict his pigmy kinsman to slay him. Our American species, however, appear to be less inclined to cannibalism than those of Europe, this being the only instance in which I have known one to destroy another, and for several days I have had a *Chrysopa* and a much larger *Hemerobius* larva enclosed together and left at times without food, yet they have manifested no inclination to molest each other.

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crops of late years. A number of the small yellow grubs sufficient to destroy every kernel in a head of wheat would no more than suffice an aphis-lion for a single meal. And if these voracious creatures are usually so common as I have found them to be the present season, it would be an easy matter for a person who is familiar with them to gather such a number of the eggs and larvæ as, scattered through a wheat-field infested by the midge, would greatly diminish the damage done by this insect.

The larvæ of different species of these insects differ considerably in their colors. They are mostly of a reddish-brown color, with a darker stripe in the middle, and are cream-colored along each side. They have bodies of a long narrow weasel-like form, wrinkled transversely, with six rather long legs anteriorly. But they may be distinguished from all our other insects and larvæ by their two long slender jaws, curved like sickles, which project horizontally forwards from their heads. Along each side is a row of projecting points, one to each segment, from the ends of which several fine bristles radiate in all directions. Others have the whole of their backs covered with rows of similar elevated points and radiating bristles, giving them a truly frightful appearance. But these have the artifice to conceal themselves from view, by placing the empty skins of their victims between their radiating bristles, so that they adhere, and completely hide the insect from view. It is the skins of the woolly plant-lice which they mostly employ for this purpose. Thus covered they resemble a little mass of white down adhering to the bark of the apple tree, and at a short distance one of these insects thus covered can scarcely be distinguished from a colony of the Apple-tree blight, which is usually covered with a mass of down of similar size and appearance. Thus disguised they are able to approach their victims without exciting their alarm and putting them to flight. It is in autumn that the species which thus cover themselves appear upon the apple trees. I have noticed none but the naked kinds without bristly backs in July and August.

The Larvæ cast their skins soon after birth and often before they have taken any nourishment. No other moulting occurs, that I have observed, until they change to pupæ. When newly born the larva of the New-York Golden-eye is 0.05 long, soft and tender, long and narrow, with the opposite sides of the head and thorax straight

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where it lies, and to these the skins of any dead plant-lice or particles of dirt which may be within reach are affixed, to serve as more convenient points of attachment for the threads which are afterwards spun than what the naked threads would be. Inside of these the insect lies, with its tail playing around backwards and forth. At first the skin is so distended and the body so stiff that it can only bend inwards in the form of a semicircle or of a horse-shoe, and the head is thus brought opposite the tail, giving the insect a ludicrous aspect as it lies still, with its eyes gazing fixedly at the tail as if in astonishment at seeing it fly around in such a singular manner. The tail at this times reaches around to every part of the half of a sphere, and when one side has become sufficiently filled with threads, the body moves along to give it access to another side, the insect thus lying at one time upon its side or its back, and at another time standing as it were upon its head. Occasionally, as if tired with its cramped position it straightens out somewhat, thus putting the threads upon the stretch and moulding the sides of the cavity in which it lies into a smooth and even surface. As so much matter is given out from its body to form the threads of the cocoon, the skin ceases to be distended as it was at first, the body shrinks and becomes more flexile, and as the cavity in which it lies becomes more and more contracted in size by the threads which the tail is constantly adding on every side, the insect is drawn together into a smaller space and becomes coiled into the form of a ball, the head being pressed down upon the breast, with the tail directly over it briskly continuing its work in the small vacant space which here remains. The feet are now so cramped that they are incapable of turning the body around as at first, and it now only moves along slightly by a vermicular motion often repeated. The threads have now become so numerous and close that finally no open meshes are left between them, and thus a small ball of paper-like texture is formed in the centre of the cocoon, within which the insect is entirely hid from view, tightly bandaged like the feet of a Chinese lady and compressed to a quarter of its previous size. This is a most remarkable circumstance in the history of these insects—that the larvæ contract and compress themselves into cocoons of scarcely one-fourth their size, and from these cocoons come flies

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resembling *Chrysopa* in most of its details, but instead of having the antennæ inserted close together, they are separated at their bases, and a cylindrical protuberance or horn projects from the front between them. For this genus I propose the name *Meleoma*, formed from two Greek words, implying bad smell, in allusion to the odor which in common with several species of *Chrysopa*, these insects exhale. But one species is known to me, which may be named and described as follows:

SIGNORET'S GOLDEN-EYED FLY, (*Meleoma Signoretii*) is of a pale yellowish green color, and is clothed with fine short pubescence, especially upon the abdomen. The cylindrical horn which arises between the base of the antennæ is longer than broad, and is directed forward upon a line with the head and thorax. It is a third longer and somewhat thicker than the enlarged basal joints of the antennæ, is slightly dilated at its anterior end, where it is abruptly turned downwards almost at a right angle, this deflected part forming a thin transverse lamina of a light yellow color, vertically striated on its anterior face, and with a projecting acute tooth in the middle of its lower margin, which is of a brown color and turned backwards. Upon the top of the head is a transverse elevation, with a deep excavation immediately back of it. The face has a round smooth elevated brown spot upon each side of its centre. The antennæ are very pale brownish, the two basal joints light green. The basal edge of the anterior segment of the thorax is elevated, and there is a more prominent obtuse elevation forward of this, separated from the base by an intervening transverse groove. The basal elevation shows a longitudinal impressed line on its middle, and back of this a more strongly impressed line extends across the middle of the anterior elevated lobe of the second segment. The legs are whitish, the feet tinged with dull yellow, with black hooks at their tips. The wings are slightly angulated at their tips, the hind pair more conspicuously so. They are hyaline and glass-like, with a slight opacity at the stigmas or that part of the wing which is forward of the extremity of the outer margin. Their veins and veinlets are whitish except the two subapical series of veinlets of the anterior pair, and those which are given off along the inner side of the rib-vein, which are brownish black. This species measures 1.15 across the wings when spread It was captured the latter part of July, near the summit of Mount Antonio, one of the outliers of the Green Mountain range, slightly beyond the boundary of our State, in Rupert, Vermont. I name it in honor of my valued friend, Dr. Signoret, of Paris, whose elegant Iconograph of the *Tettigoniides* now publishing in the Annals of the Entomological Society as well as his previous productions, are an enduring monument of the extent and accuracy of his researches in that branch of the science to which he devotes himself.

The species of the genus CHRYSOPA are all of a bright pale green or yellowish color; the number and situation of the veins and veinlets or short connecting veins in their wings, is the same, and they differ but little in size. To the naked eye they seem to form but a single species. I had long noticed that individuals of

his genus presented black dots and other marks upon the h
nd thorax, but they were in all other respects so much l
thers destitute of these spots, that I was in doubt whether t
ere anything more than mere varieties of two species, the *P*
nd *chrysops* of the old authors, or the American representati
f those species, the one having the veinlets pale green, the ot
aving them varied more or less with black. Awaiting for s
ct that would throw light upon this subject, I several years
et with ten chrysalids upon the leaves of a yellow pine, atta
l near each other, and all obviously the progeny of one par
occurred to me that when these disclosed the perfect in
ey would furnish evidence whether the same species presen
ose slight differences in its markings which I had noti
ong different individuals of this genus. I accordingly gathe
em, and in a short time obtained from them the mature fl
ese were all alike in every respect, and were destitute of
ts or other marks except a tawny yellow spot upon
eeks. I therefore regarded this mark upon the cheeks as fo
; the distinctive character of a species. All the specim
ich were obtained in the manner stated had the veinlets
ir wings pale green; other individuals, however, occur
ring the same tawny yellow spot upon the cheeks, but in wh
ends of the veinlets were dark green or black. These I l
n inclined to regard as only varieties of the species, until
sent season I discover that these individuals which have
s of their veinlets black or dark green come from coco
ch are globular, white, with a rough ragged surface from
ous loose fibers of silk adhering to them, whilst those wh
e gathered upon pine leaves were oval, pale green and smoo
n the cocoons, therefore, it is evident that they are of
nt species. It is thus shown that a variation in the color
veinlets of the wings, as well as in the dots and other ma
n the head and body in this genus, is to be regarded as i
ng a difference in the species. The general reader is c
ly inclined to the opinion that naturalists make their favo
ce unduly complicated and obscure by founding multitu
pecies upon what appear to be slight and unessential
ions. But the facts here stated will show him some of

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evidences which compel us to regard these minute and seemingly unimportant marks as valid indications of differences which actually exist in nature.

To facilitate the discrimination of these species of this genus which are here described, they are arranged in an analytical series, which, on a slight inspection, will be intelligible to every reader.

1. (18.) Sockets in which the antennæ are inserted margined more or less with black.

2. (5) Two black or dusky stripes upon the top of the head.

3. (4.) Veinlets mostly black, a few with a short green band on their middle.

The WHITE-HORNED GOLDEN-EYE (*Chrysopa albicornis*). Antennæ whitish, basal joint with an orange-red ring surrounding it wholly or in part, second joint with a black ring; sockets at their base with an uninterrupted black margin. Head above with two parallel black stripes confluent anteriorly with the black margins of the antennæ sockets; face with an orange-red spot each side upon the cheeks and a black crescent under each eye, its anterior horn running into the black margin of the antennæ sockets. First segment of the thorax with an impressed line in its middle, and three brown spots on each side, behind which are two black dots and a fourth brown spot situated upon the basal edge; second segment with two short black lines upon its anterior and two brown spots near its posterior edge. Veinlets black, those in the disk green in their middle, those ending on the inner and apical margins green except at their bases, those of the hind wings green except the row towards the tips, those outside of the rib-vein and the bases of those branching from the inner side of the rib-vein. Wings expand 1.15. My specimens of this species were captured in the State of Mississippi in April.

4. (3.) Veinlets green, slightly marked with black at their bases.

The DISAGREEABLE GOLDEN-EYE (*C. illepida*). Pale yellowish green clothed with short white hairs. Head yellowish white, pale yellow above with two black stripes which are often dusky in their middle and slightly converge anteriorly, their anterior ends confluent with the black margins of the antennæ sockets; a black dot on the base behind each eye. Antennæ pale yellow, becoming dark brown towards their tips; basal joint white with a pale tawny spot on the upper side; second joint with a black ring; sockets broadly margined with black except above between the anterior ends of the longitudinal stripes where is an interruption of bright tawny red. Eyes dark golden green. A black crescent under each eye, the anterior horn of which joins the black margin of the antennæ sockets in the middle of their under

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are given off from the rib vein, which are black at their bases, and those on the outer side at their tips also. It is of a pale yellowish green color with a light yellow head, the orange red spot on the cheeks with a black streak towards its hind edge, and the two anterior dots on the top of the head confluent with the black margins of the sockets of the antennæ, which, between these spots, is interrupted with tawny yellow. Its wings, expanded, measure 1.10. It is much less common than the preceding species, and occurs with it in the month of June. Specimens have also been sent me from Michigan by T. E. Wetmore, Esq.

11. (8.) The tawny spot on the cheeks without any black dot or marks.

The YELLOW-CHEEKED GOLDEN-EYE (*C. fulvibucca*) corresponds with the O-marked golden-eye in the color of its veinlets, and the spots and marks upon its head, except that no black dot or streak occurs in the tawny spot upon its cheeks. Like that species also, this has an impressed line the whole length of the first segment of the thorax, but here that line is crossed slightly back of its middle by a straight transverse one, the ends of which on each side are deep black, and a pale umber brown spot extends from this backwards, nearly to the base of this segment, having an oval black dot outside of it. Forward of the brown spot is a smaller one of the same color, and on the anterior margin on each side behind the eye, as in several of the species, are two short blackish lines converging and confluent at their hind ends. The second segment has also an impressed medial line, and two brown spots upon each side. A variety occurs in which these spots last mentioned are wanting. The wings expand 1.10. This species occurs the last of July and in August.

12. (7.) Four dots only upon the top of the head, situated in a transverse row.

13. (14.) A black crescent-shaped mark under each eye.

The MISSISSIPPI GOLDEN-EYE (*C. Mississippiensis.*) The dead specimen sulphur yellow. Antennæ white, dull yellowish towards the tips, their sockets margined with black with a tawny yellow interruption above in the middle. Head with two black dots above, and one behind each eye. A black crescent under each eye, its anterior horn uniting with the black margin of the antennæ sockets, from which point a black dash is sent downwards upon the cheek, which is edged with pale tawny yellow. Thorax with spots on the first and dots on the second segment analogous to those in the following species. Legs pale green, feet pale dull yellow. Wings rounded at tips; veinlets mostly black, their middle pale green, those towards each end of the outer cell and the two veins towards the tip entirely black. Wings expand 1.20. Taken in the vicinity of Jackson, Mississippi, by my daughter, in the month of April.

14. (13.) A black dot under each eye. Tips of the wings rounded.

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those in the outer cell of the hind wings black. Wings expand 1.05. Taken the fore part of June.

18. (1.) Sockets of the antennæ not marked with black.
19. (38.) A dot or spot upon the cheeks.
20. (29.) Cheeks with a black streak or dots under each eye.
21. (22.) Two black dots under each eye.

The COLON GOLDEN-EYE (*C. colon*). Light yellow. Antennæ pale tawny yellow, black towards their bases; basal joint light yellow, unspotted. Face with two black dots each side upon the cheeks. Thorax with a black dot on each side at the apex, and in the middle a transverse but no longitudinal impressed line. Wings slightly angulated at their tips; the two rows of subapical veinlets, those branching outwards from the rib vein and bases of those branching inwards black. Wings expand 1.40. Taken the fore part of June.

22. (21.) A black streak or short line under each eye.
23. (26.) The black line not margined with tawny yellow.
24. (25.) Several of the veinlets black at one or both ends.

The CLEAN GOLDEN-EYE (*C. emuncta*). Light yellow. Head without dots or marks except a short black stroke under each eye, anteriorly joining the narrowed end of a second black stroke. Thorax without spots, save a black point at the apex on each side. Wings rounded at tips, hind pair slightly angulated; veinlets on the outer side of the rib vein black at their bases only in part, all those upon the inner side black at base and tip. Palpi black on their outer sides. Wings expand 1.30. Taken the middle of August.

25. (24.) Veinlets all green.

ROBERTSON'S GOLDEN-EYE (*C. Robertsonii*). Pale green with a whitish stripe from the head along the middle of the back. Head sulphur yellow, without spots except a short shining black stripe under each eye. Antennæ pale dull yellow, basal joint white. Thorax without spots, Legs whitish, feet tinged with brown. Wings rounded at their tips; stigma green, slightly opake; veins and veinlets all pale green. Wings expand 1 05. Captured at Tullebassie, in the Creek Indian Territory, west of Arkansas, the middle of May, and sent me by William S. Robertson.

26. (23.) Cheeks with a tawny yellow spot in which or on its hind edge is a black line or dot.

27. (28.) Color pale green.

The WEEPING GOLDEN-EYE (*C. plorabunda*). Very pale green, with a paler cream yellow stripe from the head the whole length along the middle of the back. Head cream yellow; cheeks pale tawny yellow, with a small black stripe posteriorly under each eye. Antennæ whitish, clay yellow towards their tips. Thorax without

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pale yellow spot above, a streak from the eye to the mouth, a small dot between the antennæ and a spot on the base behind each eye bright orange yellow. Eyes brilliant coppery red with a golden yellow reflection in the living specimen. Antennæ white. Palpi white, their tips brownish. Thorax pale yellow above, pale bright green on each side, bluish white beneath; first segment with a row of three equidistant bright orange spots on each side, the anterior one largest and placed rather more outwardly, an impressed transverse line across the middle; second segment with an impressed longitudinal line crossing the two anterior elevated lobes, and a bright orange spot on each side on the anterior edge. Abdomen pale greenish yellow with a deeper bright yellow stripe above, on each side of which on the five first segments is a bright orange spot, each spot crossed by an impressed longitudinal line, those on the second and third segments larger, their centres tawny; those on the fifth segment small and pale. Legs pale bluish white, feet yellowish. Wings obtusely angular at their tips, the fore ones very slightly so; stigma opake pale green; veins pale green, the marginal one white; veinlets pale green, the two series towards the tip and the ends of most of the others black. Wings expand 1.05. Taken the first of August. This is the most variegated of our American species belonging to this genus. I name it in honor of my esteemed friend and correspondent Dr. Sichel, President of the Entomological Society of France.

34. (33.) No orange spots along the sides of the back.

The New-York Golden-eye (*C. Novæboracensis*). Pale green with a pale yellow stripe from the mouth the whole length of the body. Eyes dark greenish golden when alive. A bright orange red stripe between each eye and the mouth. Sides of the head greenish white. Palpi pale dull yellowish, tips black and a black line on their outer side. Antennæ whitish slightly tinged with dusky towards their tips. Thorax commonly with a large blackish spot anteriorly on each side, formed of two or three confluent smaller ones. Beneath greenish white. Legs very pale green, feet yellowish white. Wings angular at their tips, the hind ones more conspicuously so, veins pale green; veinlets black at both their ends except those ending in the inner and apical margin, the two series of veinlets towards the tip entirely black; veinlets of the outer cell of the hind wings black at both ends, those branching from the inner side of the rib vein black at their bases. A variety has the veinlets marked with dark green instead of black. Wings expand 1.05. Common the latter part of June and through most of the month of July, depositing its eggs singly, commonly on the margins of apple and other leaves, elevated upon threads the tenth of an inch long. This, like some of the other species, is perfectly inodorous.

35. (30.) Veinlets entirely pale green or white.

36. (37.) Stigma hyaline, scarcely obvious.

Harris's Golden-eye (*C. Harrisii*). Like the preceding in all respects, except that it is slightly larger and the veinlets of the wings are greenish white without any traces of dark green or black at their ends. Wings expand 1.15. Taken the last of July and in August. Its cocoon is smooth, of a bright pale green color and a regular oval form, 0.14 long by 0.11 in diameter, whilst that of the preceding species is rough

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ernally, with numerous threads loosely attached to its surface, and of a whi
or and a globular form. I have heretofore regarded this species as the *Chrysop*
la of Europe, and it is probably the species designated under this name by D
ris (New England Insects, page 215). It does not appear to be fully settled
it species this name is to be applied, the British entomologists (Curtis, Journal
Royal Agricultural Society, iii. 63; Stephens, Illustrations Mandib. vi. 105) d
bing a different insect from that of Rambur (Neropteres, p. 424). But on con
ing our species with the full descriptions given by these authors, it is evident
inct from both the European species that have received this designation, neith
which appear to possess a paler dorsal stripe and some other marks belonging t
insect.*

37. (36.) A blackish brown opake spot on the stigma.

he VIRGINIA GOLDEN-EYE (*C. Virginica*). Immaculate, save a blackish spot
side of the thorax at its apex. Wings slightly angular at their tips, veins a
lets pale green, th se branching from the inner side of the rib vein faintly ting
dusky at their bases; first veinlet of the second row towards the tip black a
gined with smoky; stigma with an opake brown spot, more strongly marked
hind pair. The small semi-oval cell which is formed in the straight mid-vein t
is its base in all our other species is here irregularly quadrangular, and bound
traight veinlets on each of its four sides. Wings expand 1 35. Taken in Vi
, near Cartersville, by the late Tha ldeus A. Culbertson, of Chambersbur
nsylvania, whose love of science and activity in its pursuit. rendered his ear
h a loss to our country.

8. (19.) Cheeks pale and without any spot or dot.

9. (42.) Antennæ black towards their bases.

0. (41.) A black stripe on the outer side of the basal joint
antennæ.

e STRIPE-HORNED GOLDEN-EYE (*C. lineaticornis*). Pale green. Head whit
ish on the top with two or three small dark brown dots on each side anteriorl
the upper edge of the sockets of the antennæ. Antennæ pale brown, bas

ext to the *Perla* Fabricius describes a species from the Society Islands in the Paci
which he met with in the cabinet of Sir Joseph Banks, which is rather larger than *Per*
an ash gray color with whitish wings and antennæ double the length of the body, fro
last character he names it *filosus*, or the Threadlike golden-eye. I have specime
he same locality, presented to me by Lieut. Pattison, U. S. Navy, which are perhaps t
species, as they coincide with the description in most of its points. They however a
smaller than *Perla*, the wings expanding from 0 75 to 0 90, and only the posterior p
thorax is ash grey, its anterior part and the head being bright yellow and without spo
tennæ are double the length of the body, blackish, becoming yellow at the base, w
dot on the upper side of the basal joint; the wings white, but pellucid, their veins a
s pale dull yellow. Should this prove to be different from the Fabrician species, as
ntly is, it may appropriately be named the *Chrysopa filicornis*, or Thread-horn
-eye.

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fourth part of their length black, basal joint white with a black stripe the whole length on its outer side. Thorax with an impressed transverse line forward of the base of the first segment, and a longitudinal one on the anterior elevated lobe of the second segment. Legs white. Wings very slightly angulated at their tips; stigma marked by a slight opacity; veinlets dusky or black. Wings expand 1.10. Taken the middle of July.

41. (40.) A black dot on the outside of the first joint of the antennæ at its tip.

The DOTTED-HORNED GOLDEN-EYE (*C. puncticornis*) is perhaps only a variety of the preceding, as it corresponds with it in all respects, except that the basal joint of the antennæ has only a black dot at its apex on the outer side and there are no dots on the edge of the sockets of the antennæ; the first segment of the thorax has two transverse impressed lines and a longitudinal one behind the middle. The abdomen has a brown stripe above on each side. Wings expand 1.15. This also occurs in the middle of July.

42. (39.) Antennæ pale.

The CONSUMPTIVE GOLDEN-EYE (*C. tabida*) is pale green, almost white; the head is white and without spots, except a slight discoloration on the cheeks in some individuals which commonly disappears in the preserved specimen; the antennæ are white their whole length; the thorax is white along the middle and pale green upon each side; the wings are obtusely angulated at their tips, their veins white tinged in places with green, the veinlets greenish white, their ends black, the two series towards the tip entirely black. Wings expand 0.95. Occurs the fore part of August.

The Lace-wing flies pertaining to the genus HEMEROBIUS differ from each other much more than those we have been considering. They are generally of pale dull colors, but vary greatly in size, in the veins and spots upon their wings, &c. Most of the following species have three longitudinal veins branching from the rib vein towards its base on the inner side; the three last species, however, have only two such veins, whilst the first has several, and the second has four.

The FRECKLED LACE-WING (*Hemerobius irroratus*, Say) is black and hairy with a pale yellowish stripe on the middle and another upon each side of the thorax. The head, scutel and under side of the body is also pale yellowish. The wings are hyaline and glassy, with numerous irregular blackish spots and dots, those on the margin larger and alternated with whitish spots, and there is a largish darker colored spot near the middle and another towards the tips of the inner longitudinal veins, situated upon their connecting veinlets. The veins are black alternating with white. The hind wings are without spots except in the region of the stigma; their veins are black with only the marginal and rib veins alternating with white. The wings expand from

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of meadows and prairies. I have met with it upon peach but never upon apple leaves. The margin of the fore wings presents a curious appearance, being occupied like several of the other species with a row of dots, which, when magnified, resemble a string of beads, and it is almost always the case that, around the entire margin, every fourth dot is white, the other three being black.

The CHESTNUT LACE WING (*H. Castaneæ*) has all the veins white alternated with black or brown rings, with the usual two series of veinlets black feebly margined with dusky; a large blackish dot on the first longitudinal vein at the apex of the outer basal cells, and a smaller one at the next fork beyond this, and similar dots on the inner rib-vein at the origin of each of the discoidal veins; wings hyaline, the margins faintly tinged with smoky. Body whitish with a large spot under each eye, a stripe on each side of the thorax and a row of spots on each side of the abdomen brown. Wings expand 0.65. This is one of the most common species throughout the northern and northwestern States, and both the larvæ and the perfect insects may always be found upon chestnut trees infested with plant-lice, and also upon the walnut and other trees, from April till October. It varies much in the depth of the color of the dots on the wings and the rings upon the veins, these being sometimes black and very distinct and at other times much more faint, either brown or tawny. The dots on the margin are white interspersed irregularly with black ones. A variety has all the rings upon the veins black and more broad than usual, and instead of the three dots which commonly occur upon the inner rib-vein this vein is annulated with black through its whole length. The larva is white or tawny yellowish, with a slender brown line in the middle and a row of blackish spots on each side, the head with two large longitudinal black spots and a black dot above the base of each leg. Its sides have a serrated appearance, from a row of projecting tubercles the tips of which are furnished with slender radiating hairs.

The PRESERVER LACE-WING (*H. tutatrix*) has translucent wings with white veins, which on the fore wings have black rings at somewhat regular intervals, and from each side of each ring proceeds a short smoky brown line, which is inclined towards the apex of the vein, thus forming a series of V-shaped marks crossing the veins at each ring; near the base of the inner margin of the fore wings are a few black dots. The body throughout is white tinged with yellowish; the thorax has three brown spots on each side which are often somewhat confluent into a continuous stripe; the abdomen has a row of eight brown spots each side of the middle, situated upon the sutures. The wings expand 0.60. This is much like the preceding species, but is a size smaller, with the wings more clear and glassy and without any dusky tinge towards their margins, and with the series of marginal dots all white. It was captured in September upon apple trees.

The UNITED-VEINED LACE-WING (*H. conjunctus*) has pellucid wings becoming dusky towards the margins; veins of the fore wings white with blackish rings and bands; a blackish spot around each of the veinlets except the two innermost ones, and a smaller spot at the base of each discoidal vein; marginal dots alternately black and brown, the black ones occupying the apices of the veins; lower wings and their veins without spots. Wings expand 0.53. The wings are spotted much like those of *alternatus*, except that the margin is wholly immaculate. Its spotted wings at once separate it from the following species, which differ from all our other lace-wings with

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ceding. Body blackish; antennæ shorter than the body, robust, thread-like and not tapering, black; legs pale. Wings expand 0.38. Taken in Illinois, on bushes beside Henderson river, the first of October.

The TITMAN LACE-WING (*H. delicatulus*). Two veins arising from the inner rib-vein, the first more towards its base, the second more towards its tip than in the preceding species; wings hyaline with dusky dots on the veins and a single row of veinlets running obliquely across the disk from the rib-vein to the first longitudinal and broadly margined with dusky; veins pale brown, those of the costal area blackish, the alternate ones towards the base forked, all the others simple; margin thinly fringed with short hairs, a dot on the tips of the veins and a smaller one between them. Body dusky yellowish; antennæ longer than the body, brownish; legs pale. Wings expand about 0.40. Swept from the grass of prairies in Illinois, the first of October.

Another insect closely related to the HEMEROBIIDÆ, and the larva of which is supposed to feed upon plant-lice, may be noticed in this connexion. It is of minute size, and by no means rare, occurring upon apple and other trees, and also upon the wing at twilight or in shady situations, from early in June until the end of July. It is so anomalous that, at one time and another, I have been occupied several days in investigating it and determining where it should be arranged. When first captured I supposed I had a species of *Aleurodes* in hand, its minute size, its mealy-white coating, and the size of its wings giving it a close resemblance to the insects of that group. Indeed the European species allied to this were at first placed by Mr. Stephens in that family. But the number of veins in the wings and of joints in the feet and antennæ, and above all the structure of the mouth with jaws for masticating food and not a beak for suction, absolutely excludes these insects from such an association, and also from being arranged with the moths, where the old authors placed them. It is obvious that our insect pertains to the order NEUROPTERA. And in this order its many points of resemblance to the *Coniopteryx Tineiformis*, Curtis, leaves no doubt that it finds its true relatives with that insect and its associates, the classification of which has so much perplexed the entomologists of Europe. Whilst Messrs. Curtis and Stephens associate this genus with the PSOCIDÆ, Mr. Westwood regards it as having more affinities with the HEMEROBIIDÆ. Important differences, however, separate it from both of these families. It is unlike the Psocidæ in having five-jointed feet, and antennæ of a different form and with joints doubly numerous; and differs from the Hemerobiidæ in having wings

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with but few veins and veinlets, the hind pair smaller tha
anterior, &c., and is separated from both these families b
mealy coating of the perfect insects. Its arrangement in eit
evidently incongruous. Dr. Burmeister has therefore ele
these insects to the rank of a distinct family, named CONIOP
GIDÆ or Mealy wings, the single genus *Coniopteryx*, with its
European species, being all that is at present known pertaini
this family.

On comparing our insect with those of Europe, althoug
general resemblance is so close, we notice some important
crepancies in its details. The veins of its wings are more si
and less connected by anastamosing veinlets, there being but
of these veinlets in the disk of the wing, and three near the b
arranged in a continuous line, and leaving only the outer
inner veins insulated from their origin to their tips. Thus, w
the European insects have three closed discoidal cells, in
insect there is but one. The veins of the hind wings in
European species are forked and connected by veinlets, whils
ours there are no veinlets, and only one of the veins is fork
Westwood states the wings to be wholly destitute of ciliæ
fringe-like hairs along the margin, whilst here a series of sh
fine erect hairs are very distinct along the apical and inner ed
The eyes moreover are widely notched and kidney-shaped, inst
of being round. These differences forbid our including our in
in the same genus with those of Europe. It will therefore f
a second genus in this family, for which I propose the na
Aleuronia (Greek ἀλευρον, farina or dust) having allusion to
mealy coating with which these insects are covered. And as
Westwood (through whose kindness my cabinet has been enric
with specimens, particularly of some of the minute and inter
ing species which he has described) was the first to separate
insects of this group generically, this species may appropria
be dedicated to him. Whilst the more simple veins of its wi
would approximate this family more closely than heretofore
the Psocidæ their ciliated margins give it an additional res
blance to the Hemerobiidæ, and leave the question as to wl

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of these families the present is most nearly related in much the same doubt in which it has hitherto been.

WESTWOOD'S MEALY-WING (*Aleuronia Westwoodii*) measures one-tenth of an inch to the tips of its wings which project a third of their length beyond the tip of the abdomen, against the sides of which they are held almost perpendicularly when at rest. It is of a blackish color, its abdomen bright yellow of a paler or deeper tint, its legs pale, and the whole surface of its body and limbs is dusted over with a white meal-like powder, except the antennæ, which are black, thread-like, about two-thirds the length of the body and composed of about twenty-eight joints, whereof the basal is the thickest, and the second is longer than those which succeed, which are all of equal size and short cylindrical, their length and breadth equal, the apical oval. The head is elevated upon a short neck in the living specimen and is wider than long, round and flattened in front; the palpi rather long, five-jointed, the apical joint oval, and as long as the two which precede it taken together; the labial palpi three jointed, their apical joint large and egg-shaped. Legs of medium size, the hind pair longest and about equalling the body in length; feet five-jointed, the basal joint cylindric and forming nearly half of their whole length, the third joint shortest, the tips ending in two minute hooks. The wings are broad, rounded at their ends, with six veins proceeding from the base, whereof the second or rib-vein gives off two branches, one at the end of the anastamosing veinlet near the base and the other forward of the middle, both of these branches forking rather beyond their middle, thus making ten veins which end in the apical and inner margin. The first of these branches forward of its furcation sends an anastamosing veinlet inward to the next or mid-vein, which, with the rib-vein, are obviously thicker and more robust than the other veins. The hind wings have five veins ending in their margin, whereof the second and third unite near the middle of the wing.

Having occupied so much space in describing the aphis-lions and their habits, we present but a brief sketch of the habits of the remaining destroyers of the plant-lice, reserving a description of their species for a future occasion.

Equal to, or even surpassing the aphis-lions, in the havoc which they make among colonies of plant-lice and the numbers which they devour, are the insects popularly called lady-bugs or lady-birds. These pertain to the Family COCCINELLIDÆ, in the Order COLEOPTERA. The eggs of these insects—smooth, oval, and of a bright yellow color—may frequently be met with upon the under surface of leaves, placed in a cluster of twenty, thirty or forty, in contact with each other, and gummed by one end to the leaf. These hatch within a few days, a small blackish larva coming from them, which is slender bodied, tapering posteriorly and with six legs anteriorly. It walks about with much animation, and

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approach of a fly or other insect, the pupa gives a sudden spiteful jerk, by which to frighten the intruder away, and if this fails, by a sudden spring it elevates itself so as to stand out at right angles from the surface to which it is attached, remaining motionless in this posture about a half minute, when by a similar spasmodic snap it returns to its usual position.

The insect remains dormant in its pupa state about a fortnight, when its hard exterior shell cracks open, and from it crawls a small shining beetle nearly the size and shape of a half pea, though often much smaller than this. The species generally are prettily colored, being bright red, yellow or white, with black spots, or black with red or yellow spots. These different spots and colors serve as marks whereby to distinguish the different species, of which nearly a hundred are named and described, inhabiting the United States. The perfect insects subsist upon plant lice also, though they pursue and devour them with less avidity than when in the larva stage of their lives. They may always be met with where plant-lice abound, and I have known persons who supposed that it was these insects which bred the plant-lice, and who consequently made it a point to destroy every one which they could discover upon the currant bushes, cherry trees, &c., in their yards, and who were surprised to find that notwithstanding all their care and pains in searching out and destroying these "old ones," their shrubs and trees appeared every year to be worse infested with lice than were those of their neighbors. This fact is but one of a multitude which might be adduced, showing to what sad mistakes ignorance leads, and how important it is that information with respect to our insects and their habits should be diffused among our citizens.

Other inveterate enemies of the plant-lice are certain two-winged flies pertaining to the Family SYRPHIDÆ, in the Order DIPTERA, which family has the genus *Syrphus* as its type. These flies resemble our common house-fly in size and shape but are much handsomer, being of a bright yellow color with various spots and bands of black, according to the species. They may frequently be seen in summer hovering around and alighting

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and horny, with numerous impressed transverse lines, and changes to a dull yellow or a black color, and those species which have two horns forward of the tip still retain them. Within this shell the insect puts on its pupa form, from which the fly subsequently hatches.

The aphis likewise has foes within as well as without. In addition to the several insects of which we have now treated, all of which attack it externally, it has internal enemies also, a group of insects which dwell in the interior of its body during their larva state, and eventually kill it. These are nearly as efficient in keeping its numbers reduced as any of those which we have been considering. We will speak more particularly of them in connection with the aphis which infests the cherry.

A succession of the several species of these different kinds of destroyers are making their appearance the whole season through, and as many of these species are among our most common insects, it will at once be perceived that they render us most important services in destroying these pests of vegetation, and preventing them from becoming excessively multiplied notwithstanding their unparalleled fecundity. But without actually observing them at their accustomed work no one can fully appreciate their value to us, and the amount of herbage which they save from destruction. Wherever plant-lice become numerous there these several kinds of enemies speedily congregate and rapidly multiply, devouring incredible numbers of these vermin, and often in a surprisingly short space of time completely exterminating them.

AFFECTING THE FRUIT.

In a round cavity ate near the tip end of the young fruit; a minute, very slender blackish-purple insect, with narrow silvery-white wings upon its back resembling a long Y-shaped mark.

THE APPLE THRIPS. *Phlœothrips Mali.*

Although a profusion of flowers in the spring is often hailed as a harbinger of a copious yield of fruit, this expectation is very frequently disappointed. Whilst they are yet young, quantities of

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This insect measures only six hundredths of an inch in length and one hundredth in width. It is polished and shining, and of a blackish purple color. Its antennæ which are rather longer than the head and composed of eight nearly equal joints, have the third joint of a white color. The abdomen is concave on its upper side, and is furnished with a conical tube at its tip which has a few bristles projecting from its apex. The wings when folded are linear, silvery-white, and as long as the abdomen; they are pressed closely upon the back, spreading asunder at their bases, and appear like an elongated white Y-shaped mark. Viewed from above, the head is of a square form, longer than wide. The first segment of the thorax is well separated from the second, is broadest at its base, and gradually tapers to its anterior end, where it is as wide as the head. The following segment is the broadest part of the body and square, with its length and breadth equal.

The insects of this tribe, abroad, are found to be great pests and difficult to exterminate. Dusting the vegetation which they infest with flower of sulphur and washing it off a few days afterwards has been found successful in some cases. It is probable that when young and in their larva state they are more tender and more easily destroyed than when mature. But until the history of this species which infests our apples has been more fully observed we shall scarcely be able to decide upon the most judicious measures for combatting it.

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color, adhering to the bark on the under sides of the limbs, particularly of young trees which are growing thriftily. These scales are the relics of the dead females covering and protecting their young. Some are of a darker color than others, and smaller ones occur which are of a dull yellow hue. These scales are not freckled with paler spots like many of our species of bark-lice; their surface frequently presents shallow indentations as though it had been slightly pressed upon in places with the head of a pin, and the outer margin is wrinkled, as shown in accompanying figure, and is sometimes marked with faint black bands. If one of these scales is removed a round white spot the size of the scale remains upon the bark, appearing as though made with chalk. Upon the underside of one small twig, in a distance of nine inches, thirteen of these scales occurred and five white spots where other scales had been rubbed off.

At the time when I noticed these scales the young lice under them were active and so minute that they appeared to the eye like particles of dust. I conveyed a twig to my residence and bound it to a thrifty limb of a young apple tree, to ascertain whether they could subsist upon this tree; but they all perished, not one of them leaving the pear twig, that I could discover. The following May the chalk-like spots where the scales had been fixed upon the twig were still distinct, the storms and frosts of autumn and winter having scarcely dimmed them in the least.

Beneath the scales the young lice are interspersed through a mass of white cotton-like matter. This subsequently increases in volume and protrudes from under one end of the scale, elevating it from the bark, as shown in the annexed cut. The young lice now crawl out from among this matter and diffuse themselves over the smooth bark, appearing to the eye like minute whitish specks or fine dots. When magnified they are found to be of an oval form, somewhat flattened, about the hundredth part of an inch in length, and two-thirds as broad as they are long. They are of a dull white color, with six legs and two short antennæ of a hyaline-white appearance. The antennæ are thread-like or of equal diameter through

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3. THE PEACH.

AFFECTING THE ROOT.

Cankering and destroying the bark of the root and causing the gum to exude profusely; a white cylindrical fourteen-jointed worm, with six true legs and ten pro-legs.

THE PEACH-TREE BORER. *Ægeria exitiosa*, SAY.

With all the care and attention which can be bestowed upon the Peach tree, it is much more short lived at the present day than when the country was newer. What medical men would term a change of "diathesis" appears to have taken place; some alteration in the soil or climate has occurred, whereby this valuable fruit tree cannot be grown so readily and successfully as formerly. Hon. John A. King informs me, that when the property which he now occupies at Jamaica, on Long Island, was purchased by his father, in the year 1816, there were growing contiguous to the farm mansion, peach trees which were thrifty and vigorous, although they were scores of years old and of such size that it was necessary to climb up among the limbs to gather the fruit. The fruit, moreover, was of a finer quality and a more delicious flavor than any which is met with at the present day. Upon the same ground he can now obtain but one fair crop of fruit; as soon as a tree has yielded this it produces no more, but rapidly dwindles and dies. The Messrs. Parsons, nurserymen at Flushing, confirm this statement. They say that four bearing years is the utmost that can be anticipated from this tree, and that to insure a supply of this fruit annually, it is indispensable that new trees be set out every year. They say there would seem to be some peculiar principle or quality in the soil favorable to the growth of the peach, which has now become exhausted upon

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Long Island and in the adjacent districts, so that this tree d not now flourish as formerly. And similar to this is the cone rent testimony of nurserymen and writers in our agricult periodicals. Whilst upon new land at the west and southw without any of the care and attention which we here bestow, t tree grows with all its pristine vigor and luxuriance.

Two maladies, more particularly seem to attack and dest this tree, preventing it from attaining that age and size which formerly acquired. These are, the "yellows," which seems to a kind of decline or consumption peculiar to this tree, and t borer or grub at the root, the insect which we are now to consid This last is confessedly the worst enemy which the peach tree h to encounter in our country. During the past year, 1854, noticed it everywhere, from the banks of the Hudson to those the Mississippi. At the west, however, it is much less commo and by no means so destructive as with us. My own residence near the northernmost limit where the peach can be cultivate the severity of the winters commonly destroying the trees whil they are young and tender; and as I here had never captured th moth which produces these borers, I have hitherto suppose this was beyond the limit to which this insect reaches. But of dozen peach trees in my yard, now about ten years old, I the prese spring find all except one are destroyed, the roots being su rounded and enveloped in a mass of jelly-like gum from one three inches in thickness at the surface of the ground, and th bark entirely eroded and with worms of all sizes burrowing in And throughout this district of country the peach trees are almo all found to be dead the present spring. It is universally su posed and confidently affirmed that it has been the winter whi has destroyed them. But in several instances where I ha informed persons of the condition of my own trees, they find, coming to examine theirs, that the roots are surrounded in t same manner with a bed of exuded gum, in which a number worms are nestled. It is thus evident that it is the borer and the winter that has occasioned this wide-spread calamity, a that the evil which we have suffered might have been averted

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timely care. It would appear that the excessive drouth of the past summer and autumn had favored the multiplication of the moths which produce these borers, bringing them out in such numbers that the roots of all our peach trees were stocked to repletion, and the insects were obliged to resort to other kinds of trees to dispose of a surplus portion of their eggs, as we shall presently see.

Many intelligent persons, who are acquainted with this insect and the Apple tree borer only in their larva states, cannot fully persuade themselves that the two are really different insects, so much do the worms resemble each other in their external appearance and the habit of attacking the trees at the surface of the ground. But any one who places them side by side will readily perceive that they differ from each other in several important particulars. The Peach borer is cylindrical and not broader anteriorly, like the Apple tree borer; it has three pairs of small feet, whilst the Apple tree borer has none; it has only a few scattered coarsish hairs, whilst the Apple tree borer has numerous fine shorter ones. Such important differences prove that these worms are really distinct. They differ much more widely when they come to attain their perfect state. Whilst the Apple tree borer is transformed, as we have already seen, to a Long-horned beetle, the worm of the peach tree changes to a four-winged fly, bearing some resemblance to a large wasp, and pertains to the Family ÆGERIIDÆ of the Order LEPIDOPTERA.

This insect was named *Ægeria exitiosa* or the Destructive Ægeria by Mr. Say, and was described by him in a communication giving an account of its habits by Mr. James Worth, which was published in the Journal of the Philadelphia Academy of Natural Sciences, (vol. iii. p. 216) in the year 1823. Mr. Worth having obtained the winged moths in July supposed this month only was the one in which the perfect insect makes its appearance. But whoever examines infested roots will find worms upon them of all sizes, at all times of the year. Even in the winter small worms occur with others which are full grown, showing that these last will complete their changes much earlier in the season than

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thus forming a kind of cell the cavity of which is considerably larger than the body of the worm inhabiting it. The smaller worms have no such cells, but lie promiscuously in the gum or between it and the root. Although from their habits they would seem to have no particular use for it, these worms, like those of their order generally, spin a silken thread as they crawl about, which is of sufficient strength to hold them suspended in the air when one drops from a stick on which he is placed.

When ready to enter its pupa state the worm crawls upwards to the surface of the ground, and there forms for itself a follicle or pod-like case of a leathery texture, made from its castings, held together by dry gum and cobweb-like threads. This follicle is of a brown color and oval in its form, with its ends rounded; it is about three-fourths of an inch long and over one-fourth in diameter, but is variable in its size, being sometimes but half an inch long. Its inner surface is perfectly smooth and of the color of tanned leather. It is placed against the side of the root, often sunk in a groove which the worm appears to have gnawed for this purpose, with its upper end slightly protruding above the surface of the ground. But if the earth has been recently stirred so as to lie loose around the root, the worm will commonly form its follicle an inch or more below the surface.

Among the means whereby to grow the peach securely from the depredations of this worm, Dr. Harris, in his discourse before the Pomological Society (page 9), suggests that of grafting it upon plum stalks, saying when it is thus reared he believes it is never injured by the borer. Unfortunately for the success of the plan proposed, the root of the plum is attacked by this same borer, in which it appears to thrive equally as well as in the peach root. My friend Mr. J. E. Gavit, of Albany, who is a close observer, recently assured me of this as an item of information which he presumed I would be reluctant to credit, not supposing I had myself already noticed the same fact. Some young plum trees in my grounds were found to be dead this past spring, and on rooting them up the peach borer was discovered to be the

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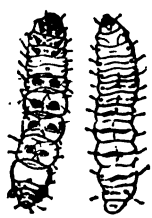
cause of the mischief, several of the worms being present in the roots. This, taken in connection with the modification which the

habits of the worm undergo when in this situation, is a remarkable fact. Although the plum abounds in gum like the peach, none of this gum exudes from its root when attacked by this borer. The worm, therefore, having no covering to protect it, does not erode the bark and nestle upon the outside of the root of the plum as it does in the peach, but lies under the bark and subsists entirely upon the soft sap-wood of the root. Commencing slightly below the surface of the ground it works its way downwards immediately under the bark for a distance of about four inches, forming a long and somewhat irregular cylindrical channel. The annexed cut shows this burrow as it appears when the bark is removed from the root. As the worm moves along it packs its castings, which appear like a tan colored powder, into the channel behind it.

This is an important fact, showing that if no peach trees were cultivated in our country this species would still sustain itself without difficulty in the roots of the plum. Indeed, as this insect is a 'Native American,' wholly unknown in the peach trees of other countries, it is quite probable that before the peach was introduced upon this side of the Atlantic it bred exclusively in our indigenous species of plums, and has now almost entirely forsaken these and attached itself to this more congenial foreigner.

The LARVA is a naked soft white cylindrical grub, slightly flattened on its under



side (of which the left hand figure of the accompanying cut gives a view), and when full grown measures over half an inch in length and nearly a quarter of an inch in diameter. It is divided into fourteen nearly equal segments by broad shallow transverse constrictions. Its head is shining yellowish red, marked in front with black and at base in the middle with whitish, which last is also the color of the throat. Two impressed lines on the face converge and meet each other towards the base of the head and then diverge. Inside of and parallel with these are two slender black lines meeting each other in the form of a letter V. The jaws are black and strongly notched at their tips, forming two sharp equal teeth. The upper lip is blackish with a pale stripe in the middle. The palpi or feelers are conical and two-jointed, and inside of their base is th

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apex of the lower jaws, a short obtuse projection with minute hairs at its tip. The antennæ are conical and three-jointed, the last joint minute and the second one armed exteriorly with a short bristle. At their base on the under side of the head are three or four dilated punctures. There are a few scattered brown bristles upon the head and also upon each of the other segments; those on the third, fourth, twelfth and thirteenth segments are arranged in transverse rows, and on the other segments they are placed symmetrically and arise from faint smooth wart-like spots. The second segment is tinged with yellowish above and has a breathing pore upon each side. The two next segments are somewhat shorter than the following ones and are destitute of breathing pores. These three segments each bear a pair of conical legs ending in a black polished claw. The remaining segments except the two last show a faint stripe, at least posteriorly, upon the middle of the back, and each has also a transverse impressed line in the middle and a breathing pore upon each side. The two last segments, which perhaps should be regarded as one double segment, are narrower, shorter, and retractile, shutting into each other and into the segment forward of them, like the joints of a telescope. Beneath is a pair of prolegs upon the seventh and three following segments, which scarcely protrude from the general surface, but are very perceptible from their soles being furnished with two transverse rows of minute black hooks, about twelve hooks in each row; and the last segment has a single shorter row of six similar hooks upon each side.

The young worm is quite similar in its details to the mature one; its breathing pores upon the second and the twelfth segments, however, are much larger and more obvious than the intervening ones.

The PUPA enclosed within its follicle is at first white, the wing and leg sheaths and the thorax being slightly tinged with tawny yellow. The breathing pores form a row of tawny dots along each side of the abdomen, each segment of which has a row of little sharp-pointed teeth on its anterior and a second shorter row of smaller ones on its posterior margin, extending half way around, from one row of breathing pores over the back to the opposite row, these teeth being of a pale tawny color and directed backwards. The three apical rows of these teeth, however, have no intervening rows of smaller ones. At the tip is a row of eight larger teeth extending entirely around. It is by means of these teeth that the pupa when ready to disclose the winged fly crowds itself forward, out of its follicle. All the teeth become longer and more sharp-pointed as the pupa approaches maturity, and the whole of the surface now assumes a pale tawny yellow color, with a darker ring at each of the sutures.

The mature insect, like most of the species of butterflies and moths, varies considerably in its size. It measures from one-half to three fourths of an inch in length, and the wings when extended are from 0 80 to 1.30 across. the female being more variable in its size than the male and furnishing both the smallest and the largest individuals. The wings of the female also measure more than those of the male when their bodies are of equal length, the more thick and heavy body of the female plainly requiring larger wings to sustain it in the air.

The MALE is of a deep steel blue color with various sulphur yellow marks and has a glossy lustre like that of satin. The antennæ are black, less than half as long as the body, abruptly curved outwards at their tips and densely fringed along their inner

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sides with numerous fine short hairs, with a slight vacancy between them at each joints. The feelers are yellow on their lower sides; there is a paler yellow sp tween the bases of the antennæ and a deeper yellow transverse stripe at the b the head both above and beneath. The thorax has a yellow stripe on each side middle, a transverse one at its base which is slightly interrupted in the middle, short broader one on each side under the wings; its base on the underside is The abdomen commonly has two slender yellow bands above, at the apex c second and fourth segments, and a white line on each side of the tuft of hairs tip. The forward hips are yellow on their anterior face, the four others at their The shanks are yellow at their tips, the hind ones have a yellow ring on their m interrupted on the inner side, the other four have a large yellow spot on their rior sides; their spines are white, their upper sides black at least on the basal The fore feet have a white ring at the apex of each joint and a broad white s upon the inner side; the middle and hind feet have a slender white line on their sides, which is often nearly obliterated, showing only a few white scales at the of each joint. The wings are transparent and glass-like with a slight tinge of an yellow; their veins, margins and fringe is steel-blue. The fore-wings have a s blue band beyond the middle upon their transverse anastamosing veinlet, a sle yellow line upon their outer or anterior margin both above and below, and a sin line on the inner edge of their inner margin, the hind wings also have a similar on the inner edge of their outer margin.

The following VARIETIES occur in this sex:

a. The pale yellow spot between the bases of the antennæ wanting.

b. The same spot enlarged and extending backwards to the neck.

c. The abdomen without white stripes upon the sides of the tail.

d. The abdomen without any yellow bands.

e. The abdomen with but one band, that upon the apex of the second segm wanting.

f. Three yellow bands, one on the apex of the fifth segment. Common.

g. Four bands, one on the apex of each segment from the second to the fifth clusive, that upon the third segment often imperfect.

The FEMALE differs from the male so much that it would not be supposed to per to the same species. The abdomen is of a long oval form instead of being sler and cylindrical, and is twice as broad across the middle as that of the male. sex is of a glossy steel blue color with a purplish reflection in places and blackish u the face, and upon the middle of the abdomen is a broad band of a bright gl orange yellow color occupying the whole of the fourth and fifth segments* ex upon the middle of the underside, where, at least on the fourth segment some or scales often occur interspersed with the steel blue ones. The antennæ have no fi along their inner sides. The fore wings are opake and of the same steel blue col the body, their tips and fringes being of a purplish tint both above and beneath. hind wings are transparent broadly margined upon both sides and marked at the with steel blue, the glass-like portion being crossed by five robust veins, and monly there are traces of a straw yellow stripe on the outer margin towards th

* Say describes the abdomen as having only the fifth segment of an orange color, every specimen which I have seen the fourth segment also is of this color.

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The female presents the fol

a. A slender transverse bla
between the fourth and fifth s

b. The o ter edge of the l
length.

c. No vestiges of a straw c

d. The space between the t
with blue-black scales, formi
parts. Quite common.

Various remedies ha
trees from this pernic
have treated upon this
tural publications, suc
tree and removing it
water around the root
ashes, of lime, &c.; su
veloping the root and
There is much testimo
are, singly, a sufficient
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peach and other fruit
other insects. Attenti
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trees were preserved
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regard to the efficacy
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has been my own expe
ever, thinks he has ca
from other weeds.

The hollow cavity e
peach tree, which is fo

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obliterated after the worm has left it, but remains often for years afterwards, and forms a favorite abode for those pseudo-insects which are commonly designated sow-bugs or wood-lice. When one of these old burrows of the borer is examined, these little animals will commonly be found huddled together within it, and covering the sides of the cavity as closely as they can stand. And on digging around the root of a peach tree at any time several of them will commonly be found. As no notice of our American species of these creatures has ever been published, that I am aware, some account of them may appropriately be given in this connection.

These animals are popularly known in different countries under the names of millipedes, wood-lice, hog-lice, slaters or sclaters, and sows. In this section "sow bugs" is the popular name invariably given to them, whilst the name wood-lice would here be understood as designating the wood-tick, *Ixodes Americanus*, and its kindred species, and millipede would be regarded as a synonym of centipede or "thousand-legged worm," a species of *Julus* or *Scolopendra*. The sow-bugs were ranked as insects by the older naturalists, but by most writers at the present day they are grouped with the lobster, crab, craw-fish, horse-hoof, &c., in a distinct class, which is named CRUSTACEA, in allusion to the hard shell-like *crustaceous* covering which forms the exterior coat in most of the species. They differ from true insects essentially in their breathing apparatus, which is a kind of gills of a pyramidal form, and made up of thin plates or short threads placed on the under side of the body, commonly at the base of the legs. Insects, on the other hand, respire through spiracles or breathing pores, placed in a row along each side of the body through which, by small pipes, air is admitted into two principal tubes which run parallel to each other, and are extended the whole length of the body. The crustaceans, like insects, have jointed antennæ and legs, and the body composed of a number of segments connected by transverse sutures, but they differ from most insects in being destitute of wings, and in undergoing no metamorphosis, the young when first hatched having the same form and parts which belong to it when mature. In this cla

the animals under consideration pertain to the order Isopoda, i. e. equal-footed, having fourteen pairs of legs of nearly equal size, and to the family Oniscidæ, which, like other families of this order has four antennæ, but here the inner pair of these antennæ is quite short and little apparent, consisting at most of only two joints. The typical genus of this family, named *Oniscus* by Linnæus, is by modern naturalists restricted to those species in which the external antennæ have eight joints, the three last joints being much more slender than the others, and the sutures separating them much less distinct than those between the other joints. I have never met with any American species having this number of joints to the antennæ. The genera *Porcellio* and *Armadillo* differ from *Oniscus* in having the slender terminal portion of the antennæ divided into but two joints instead of three, making the number of joints seven in all.

The genus *Armadillo* is distinguished from *Porcellio*, and from *Oniscus* also, by being destitute of the two conical projecting points or short tail-like processes which we observe at the tip of the abdomen in those genera, and also by having the faculty of rolling itself into a ball, resembling when thus rolled up a pea or pill, whence they are popularly named pill-millipedes. We have one or more species of these inhabiting the southern part of the State and Long Island, but they do not extend to the neighborhood of my residence, and I have not examined them sufficiently to determine whether they are different from the European species of this genus.

All the animals of this family which have yet been discovered in the central and northern sections of our State pertain to the genus *Porcellio*. These crustaceans are everywhere common about the roots of trees, under logs and stones, in the crevices of the foundation walls of our buildings and in our cellars, and they are particularly numerous under any logs or billets of wood which are left in our chip yards. They occur, in short, in all situations that are damp, cool and dark. Frequently, by night in wet weather, they crawl about the rooms in our dwellings. They are perfectly innocent and harmless, subsisting upon decay-

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ing vegetable and animal substances. They afford a dainty to domestic fowls, which devour them with avidity, and are alw scratching our yards in search of these more than any other a cle of diet. This is their chief importance in an economical asp and being so abundant they form an item of no small value to poultry breeder, though one of which but little notice is tak In former times the species of this family were highly reputed their supposed medicinal virtues, and old books upon the mate medica inform us that when dried and pulverized "they hav faint disagreeable smell, and a somewhat pungent sweetish nau ous taste, and are highly celebrated in suppressions, in all kin of obstructions of the bowels, in the jaundice, ague, weakness sight, and a variety of other disorders." And the wine of Mil pedes, prepared by crushing these animals, when fresh, and fusing them in "Rhenish wine," is spoken of as "an admiral cleanser of all the viscera, yielding to nothing in the jaund and obstructions of the kidneys." In the light of modern scien we can impute the cures attributed to these creatures only to t effect produced upon the imagination of the patient, and t curative powers of nature, for beyond some slight demulcent qu lities, they must be wholly inert, and are now wisely discard from the pharmacopœias.

Six American species, pertaining to the genus *Porcellio* a known to me, as follows:

The Smooth Porcellio (*P. glaber*) has the surface of the body smooth slightly shining, of a brownish black color, each segment presenting, except al the middle of the back, numerous short whitish lines or oblong dots arranged lon tudinally and near the outer margin a whitish spot; under side and legs white cream yellow; antennæ and projecting apical filaments unicolor with the bo Length half an inch. This sometimes when captured doubles itself into a ball, si lar to the Armadillos, but is incapable of assuming a form so compact and perfe spherical as the crustaceans of that genus. It is less common than our other spec Young individuals are slightly paler, and a variety which I name *confluentus*, which is quite rare, has the oblong dots more or less confluent, forming irreg white spots. This is at once distinguished from all our other species by having surface perfectly smooth and even, without either elevated points or granules. I long regarded this as identical with the *P. lævis* of Europe, but specimens of species, taken in the forest of St. Germain, France, and kindly sent me, with species of these crustaceans pertaining to western Europe, by my esteemed f and correspondent, Andrew Murray, W. S., Edinburgh, show it to be different.

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species has a dusky spot below the knees which does not appear in ours. It also has a double row of whitish lines, more or less distinct, towards the outer margin, which in our species is replaced by a single row of whitish spots. Other differences might be specified, but these suffice to show the *glaber* distinct from its European analogue.

The Unspotted Porcellio (*P. immaculatus*) is dull blackish brown or leaden brown with faint short pale lines and the middle of each segment rough from elevated granules; under side and legs white or lurid. Length 0.30 or less. This is readily discriminated by its uniform brown color unvaried by spots or stripes save the short longitudinal lines which are so faint as scarcely to be perceived and are frequently wholly wanting. It is also our smallest species. It probably occurs throughout the United States, for I met with it in Illinois, and specimens have also been sent me by Mr. Robertson from west of Arkansas.

The Striped Porcellio (*P. vittatus*) is black or leaden blackish with the head deeper black and the under side whitish; the segments are rough from elevated granules with their hind margins smooth; along the middle of the back is a row of white spots and another more distinct near the outer margin; these spots are often confluent, forming continuous stripes. Length 0.35. The same pale short longitudinal lines which are common in other species are more or less perceptible in this also. Young individuals are of a pale or even whitish color but show the usual stripes of a more clear white. It is one of our most common species.

The Mottled Porcellio (*P. mixtus*) is tawny yellow variously dotted and spotted with black, and with a row of whitish spots which are often confluent into stripes along the middle of the back and near the outer margin; outer edge pale, at least on the angles of the segments; segments rough from elevated black granules, their basal and apical margins smooth. Length 0.40. The elevated granules form round and oblong black dots, and often on each side of the back the intervals between them are white, thus presenting short longitudinal lines of this color, and in a variety (*variegatus*) these lines are confluent, forming a longitudinal row of white blotches between the dorsal and lateral stripes. Sometimes the stripe on the middle of the back is tawny yellow instead of whitish. This appears to be the most rare of any of our species.

The Pantry Porcellio (*P. limatus*). Black or blackish, with a stripe each side and the outer margin broadly whitish, and two rows of bright yellow spots along the back; the segments rough with raised granules over their whole surface. Length 0.50. This is our most common species, being thrice as numerous as any other. It occurs in abundance in our cellars and under stones and billets of wood in the yards about dwellings and barns. It is quite variable in its colors. In young individuals the two rows of spots along the back are pale or whitish. As it increases in size they all gradually change to yellow, or one or two of these spots take on a bright yellow color whilst the rest remain whitish, but this yellow color is successively assumed by the others, and in old individuals the whole become of a vivid ochre yellow. Dots of this same color sometimes appear also upon the narrow posterior or caudal segments prolonging the rows to the tip of the body. The following varieties of this species may be distinguished.

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THE PLUM.

AFFECTING THE LEAVES.

Wrinkling and distorting the leaves; a black, shining plant-louse, with a pal green abdomen.

The Plum Leaf-louse, *Aphis Prunifoliæ*.

The Aphis which infests the under sides of the leaves of our native and also our cultivated plums, curling and distorting them, is one of the most variable species which I have met with pertaining to this family. And so much does it disagree with the accounts which we have of the plum louse of Europe (*Aphis Pruni*, Fab.) that I am constrained, though with some doubt, to record it as a distinct species. The descriptions given of the plum louse are quite discordant. Walker (List of British Museum, p. 989) describes the viviparous winged female as dark gray with nectaries hardly projecting above the surface of the abdomen, whereas, in all the winged individuals of our American insect which have fallen under my observation, the nectaries are cylindric, nearly or quite equalling the tip of the abdomen. It further disagrees with his description, in having the third vein of the fore wings not much further from the second at tip than at base, and the fourth vein strongly instead of slightly curved. Fabricius (Ent. Syst. iv. 213) describes the European insect as having a greenish body, antennæ and legs, with a darker abdominal stripe and point each side of the base, and the margin plaited. Unless this description is very faulty our plum louse must be distinct, it having the thorax and antennæ uniformly black, and no plication on the sides of the abdomen; nor can the large dusky spot be termed a stripe. Since the foregoing was written I notice that M. Amyot (Annals Entom. Soc. 2d series, v. 476,) gives the top of the head and the thorax of the plum aphis as brown and dusted with a white powder. This more strongly

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indicates the European species to be distinct from ours, ı has a smooth shining thorax not in the least coated with any like matter.

This aphis is much less common than those which perts our other fruit trees. Its generation and habits are so simil those of the Apple plant louse that a separate account wou little more than a repetition of what has already been rel It only remains, therefore, to give a description of this speci its larva and its perfect states.

The LARVA when first hatched is of a white color, the body slightly tinge green, the feet, tip of the beak and eyes black. As it increases in size three : of a deeper green begin to appear and become more distinct and are fin a bright green color. One of these stripes extends along each side of the t and abdomen, and has in it on the thorax a large deep green dot, and upon the men two or three less deeply colored dots; the third stripe is on the middle abdomen and is not extended to the thorax. The body has now become of a ish white color, the legs, nectaries, antennæ and beak white without any t green, and somewhat pellucid. The tip of the beak, the ends of the feet a eyes are black. It is of an oval form, and measures 0.06 in length by 0.03 in ı

The WINGED PLUM LEAF-LOUSE is 0.14 long to the tip of its wings. It is and shining, its abdomen pale green with a black dot on each side of the mid the two or three anterior segments, a large dusky spot rather behind the m and a short dusky band between this and the base; tip of the abdomen acum nectaries cylindric, equalling the tip. The legs are pale yellowish, the tips thighs and the feet dusky or black. The antennæ are black, their bases pallid. wings are pellucid, their veins slender, blackish, the rib-vein and base of the vein pallid; inner margin with a black line extending inwards from the apex first vein. The veins are analogous to those of *A. Pruni* in their relative dist except as already noticed; they, however, vary so much that it is seldom a vidual occurs having them normal in both wings. The third vein is as ne second at its apex as at its base, oftener than it is more distant.

The following are some of the VARIETIES which may be met with among ind als of this species:

a. Abdomen above deep black and shining.
b. Abdomen pallid whitish; tips of the thighs and veins of the wings dusk black.
c. First fork at tip as far from the tip of the second fork as from the thir
d. First fork at tip much farther from the tip of the second fork than fr third vein, the cell between the first fork and third vein narrower at it

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e. First fork at tip much farther from the tip of the second fork than from the third vein, the cell as broad towards its base as at its apex.

f. The same cell very narrow, not half the width of those each side of it.

g. Only a single fork in the left wing.

h. Only a single fork in the right wing.

The remedies already stated for the apple aphis, will be equally efficacious for this and other species of this family.

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numbers which thus make out to stow themselves within a narrow compass are almost incredible. Upon the under surface of a small leaf three-fourths of an inch long and half an inch wide I have counted upon one side only of the mid-vein one hundred and ninety of these lice. Yet this leaf was not more densely covered than many others. The two surfaces of a small leaf but an inch long would therefore furnish ample space to accommodate a thousand of these insects.

As all the leaves are tender and juicy early in the season the aphides multiply rapidly, and in about a month after the first individuals make their appearance, namely, between the 15th and 25th of June, as I find the dates entered several times in my notes taken in different years, some of the trees become literally overrun with these vermin, their black bodies covering not only the under sides of the leaves but also the leaf-stalks, the tender succulent ends of the twigs, and sometimes the green young cherries and their stems; whilst a swarm of flies, wasps and other insects, attracted to them to feast upon their honeydew, keep up a constant buz and hum around the infested trees during warm sunny days. The leaf of the cherry, however, is of such a tough coriaceous texture that it does not become curled and corrugated like those of most trees when similarly circumstanced. Its edges merely turn backwards or become slightly rolled. The tips of the twigs, however, and the young leaves growing from them, having their juices pumped out and drained by such a multitude of tiny beaks, shrivel and die, looking as though they had been scorched by fire; and the whole tree would soon perish, it is evident, if this severe infliction was protracted. But when the aphides become thus numerous their natural enemies and destroyers are attracted to the tree and multiplied in such numbers as to make the most astonishing havoc among this feeble race of beings. Although single trees in my grounds have been equally infested in some former years, I never knew them all to be overrun with these lice as they were the 25th of June the present year. It was evident if the evil continued the trees could live but a short time. But on examination upon that day I found two or three yellow larvæ of the Syrphus flies upon almost every

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sharp-sighted and voracious were their enemies that at the end of a few days the whole were exterminated.

The aphides being thus swept away from the cherry the latter part of June, almost every year, the trees enjoy a temporary respite. But the insect soon shows itself again. Most of the foliage, however, has by this time become so mature and hardy that their weak beaks appear unable to pierce it. They therefore occupy only the few young and tender leaves at the ends of the twigs and upon the young shoots which start up from the roots. This being the only foliage from which they are able to draw their nourishment they do not again multiply and flourish as at the beginning of the season. But they continue to dwell upon these tender leaves through the summer. On the approach of cold weather males are produced, a stock of eggs is placed about the bases of the buds and in the fissures of the bark for the continuance of their race another year, and their career for the season terminates. The leaves fall from the cherry earlier in autumn than from the apple and peach, and whilst the lice which infest those trees are still abroad in full force those of the cherry have all disappeared.

A small black ant is a constant attendant upon the plant-lice of the cherry tree. It remains with them more constantly and in much greater numbers than the New-York ant which we have described upon a preceding page as accompanying the aphides upon the apple and other trees. Upon one small leaf half a dozen or more of these ants are often present, a part of them industriously occupied in vibrating their antennæ over the backs of the aphides so as to rub them gently. They are constantly engaged in this employment and appear to be much more attentive and faithful nurses than the larger New-York ants. They pertain to the genus *Myrmica* of Latreille, differing from the true ants in being furnished with stings. These insects however are so small and this implement is so weak that it is wholly incapable of penetrating the human skin. It may be seen in preserved as well as living specimens, resembling a short fine hair protruding from the tip of the abdomen. In addition to this, in place of the single wedge-like scale on the peduncle at the base of the

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on this account much complained of in this vicinity in the spring of 1850, being so numerous and active in some fields as to threaten to cut off every blade of corn in them.

The species which accompanies the plant-lice of the cherry tree does not appear to have been described hitherto, I therefore name it

The Cherry Ant (*Myrmica Cerasi*). The neuters are 0.14 long, of a dark brown color and slightly translucent, resembling resin; their abdomen is deep black and highly polished, egg-shaped and acutely pointed at its apex, its basal segment covered with minute punctures of an oval form placed longitudinally, and the remaining segments are similarly punctured upon their apical margins; the head, thorax, and anterior sides of the legs are also covered with similar punctures, but more fine; the jaws are reddish-brown and have four teeth of equal size along their inner edge; the antennæ are black, their tips brown and clothed with very fine short hairs, the long basal joint punctured; the legs are black, their bases and the tips of the shanks pale brown, and the last joints of the feet brown; a few gray hairs are scattered over the head and body.

The abdomen of this ant presents a curious appearance. It is flattened upon its upper side and very convex on its under side, thus looking as though it was attached to the thorax in an inverted position. This, however, adapts it to the direction in which it is frequently used—this ant being accustomed to throw its abdomen upward over its head and back, thus presenting its sting to anything which molests it in front. The venom of its sting has a peculiar pungent smell which remains upon the fingers when they crush one of these insects. This venom is ejected copiously and may frequently be seen forming a small clear drop at the end of the sting. And being thus armed these small ants are able to defend themselves against other insects far superior to them in size. It is wonderful to witness this ant conquer the large New-York ant and rob him of his flock of aphides. This may be witnessed by placing two or three of the cherry ants in a vial and introducing into it a leaf of poplar or apple-lice with one of the New-York ants attending them. No sooner does one of these small ants approach, than, jealous of the intrusion, he seizes it by its thorax in his powerful jaws, but is instantly informed of the fact that it carries a sting in its tail and knows how to use it. He is as prompt to drop his intended victim as he had been to seize

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half way to the tip and are dusky at least at their ends; the neck and lower side of the head are green; the antennæ are two thirds of the length of the body, dusky, and in young individuals green at their bases; the beak is short, pale green, its apex blackish; the legs are dull white, the feet and four hind thighs except at their base, blackish; the wings are pellucid, the stigma salt white margined with dusky, more widely so on its inner side, the veins black, the rib-vein white, the second fork very short.

The *wingless females* are 0.08 long, egg-shaped, pale yellowish green, their abdomens coated with a white meal-like powder except at the sutures and on the medial line, which last is deeper green, and the legs and antennæ dull white.

The *larvæ* when young are pea green with white antennæ, nectaries and legs. When older a deeper green stripe appears along the middle of the back and a row of deeper green spots each side which are more or less confluent into stripes.

The aphis upon our garden cherry is the species which is named *Aphis Cerasi* by Fabricius. It undoubtedly has been introduced upon this side of the Atlantic with the tree which it infests. M. Fonscolomb (Annals Ent. Soc. x. 173), speaking of this species in the southern part of France, says it occurs the last of July, and that he has never met with any winged individuals. This would indicate the species to be much more rare than it is with us. Here from the middle of May till the last of September it is the most common of any species of this family. For years when I have wished to investigate any fact in connectian with the aphides I have turned to this species, always finding it at hand, and always with two or three winged individuals upon every leaf, in company with larvæ, pupæ and wingless females.

The LARVÆ when newly born are about 0.03 long, of a dull white or pale yellow color, with transparent and colorless legs and antennæ. They are of an oblong oval form, with the opposite sides of their bodies parallel and their nectaries shorter than to the tip and transparent or slightly dusky. As they become larger they are broader across the abdomen and deeper yellow, the tips of the antennæ and the feet dusky and the nectaries black. After casting their skins they are dull reddish brown or chestnut colored with black heads, and are much broader across the abdomen, being now shaped like an egg and measuring 0.05 in length. Their legs, antennæ and nectaries are whitish transparent, the last equalling the tip. Others of this same size and form have the thighs, feet, nectaries and tips of the antennæ dusky.

The *wingless females* are 0.05 long, with very plump broad egg-shaped bodies, which are black and shining, with a slightly projecting tail, the nectaries equalling or even surpassing its tip and of a black color, the antennæ shorter than the body and whitish, their two short basal joints and the apical half black; the beak whitish with a black tip; the legs white with the feet, tips of the shanks, and commonlly the

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thighs at least of the hind legs, except at their bases, black. The abdomen has an elevated lateral margin, upon the upper side of which is a row of large impressed punctures.

The PUPÆ are 0.06 in length, and like the wingless females in the details of their colors and like the larvæ in their form, but are known by having the rudiments of wings which appear like vesicular scales of a white or pale green color on each side of the body rather forward of its middle, and as it approaches maturity the thorax between the fore part of these scales becomes swelled, presenting a blistered-like appearance of a dull reddish yellow color, which sometimes is the color of the body also; its nectaries equal the tip, which has no projecting tail-like appendage. If M. Fonscolomb had confined the pupæ which he describes, they would probably have furnished him with winged specimens within twenty-four hours. When the perfect insect crawls out of its pupa skin the head and thorax are dark reddish brown, and the wings are milk white and still folded in the form of small scales, as they are in the pupa; but in a few moments they start out longer and longer, gradually extending and unfolding until they attain their full size, but still retaining their white hue. They soon, however, become transparent, but like all the other aphides when newly hatched, the wings remain dim for several hours, their surface appearing as though it was sprinkled over with dew. The antennæ and legs are also white when it first comes from its pupa state.

The WINGED FEMALES measure 0.05 to the tip of the abdomen, and 0.12 to the ends of the wings, which when spread are 0.20 across; they are deep black and shining, the abdomen nearly twice as broad as the thorax, and egg-shaped, with an acute apex from which projects a short conical tail-like appendage, the nectaries reaching to its base; antennæ black and about three-fourths as long as the body; the beak short, arising between the two fore legs and scarcely reaching the bases of the middle pair, its color black or dusky with the tip black; the legs black with the shanks except at their tips, and the basal half of the thighs white. The wings are transparent, their bases, outer margin and rib-vein white, the remaining veins blackish with their bases pale; the stigma opake and dull white with its margins black, that on the inner side being wider; the second vein is about a third farther from the first at its tip than at its base; the third is slightly farther from the second at its tip than at its base, and rather farther from the second at its base than this is from the first; the tip of the first fork is but little nearer the tip of the second fork than to that of the third vein, much nearer the tip of the third vein than that is to the second; second fork nearer at tip to the fourth vein than to the first fork, much nearer the fourth vein than this is to the tip of the rib-vein.

Varieties have been observed in which the tip of the third vein is equidistant between the first fork and second vein, in which the left wing has but one fork, and in which the right wing has three forks.

The remedies already spoken of in connection with the Apple plant-louse are equally applicable to this species, and the same destroyers which were there described, namely the Aphis-lion the Lady-birds or *Coccinellidæ* and their larvæ, and those of the

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Syrphus flies are equally efficient in destroying this and all the other species of plant-lice. In connection with our account of those destroyers, all of which attack the aphides externally, it was stated that there were others which live in the bodies of these insects and thus destroy them. And we come now to present to the reader some information respecting our American species of these insects whose habits are so remarkable.

It was anciently supposed that an Egyptian quadruped which is named the Ichneumon had the habit of darting down the throat of the crocodile when it was sleeping, and there remaining, feeding upon the entrails of this reptile until it perished. This, however, has long been known to be fabulous. But among insects there is an extensive group, resembling wasps and bees, which possess this very habit which was formerly ascribed to the Ichneumon. They in their larva state reside within the bodies of their victims, feeding upon them until they destroy them. They have from this circumstance obtained the name of Ichneumon-flies, and they form the Family ICHNEUMONIDÆ in the Order HYMENOPTERA. One branch of this family is composed of species which feed internally upon plant-lice. It consists of the genus named *Aphidius* and other genera, of the group which is named *Aphidiides*. These are all exceedingly small insects little exceeding the twentieth of an inch in length, and mostly with black bodies variously adorned with bright tawny yellow and pale sulphur yellow bands and other marks. One of these small ichneumon-flies, resembling a winged ant in appearance, may occasionally be discovered busily at work among a colony of aphides. With her long thread-like antennæ stretched out in front of her and rapidly vibrating, she approaches an aphis and touches it gently, much like an ant when nursing these creatures. By this slight touch she at once ascertains whether the aphis has been previously visited. If it has not she curves the tip of her abdomen forwards under her, puncturing the body of the aphis and inserting an egg therein. She then passes to another and another. From this egg hatches a minute worm which resides within the aphis, subsisting upon the juices which the latter extracts from the plant. Thus it grows with the growth of the aphis, which furnishes the exact amount

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of aphis infesting and blighting it, each species of aphis seems to have a particular parasite preying upon and devouring it; for each kind of aphis from which I have reared these insects has furnished a species differing from all the others, and in some instances two species have been obtained from one kind of aphis. The British entomologists enumerate upwards of fifty species of these insects, which is nearly equal to the number of their aphides. They differ from all the other insects of the family to which they pertain, by having commonly a very large triangular stigma to the fore wings, and very few veins, and these commonly end abruptly without reaching the apical or inner margins. Hence there are but few if any closed cells or panes to the wings. One of our species having the wings more fully veined and forming complete cells may be met with accompanying what appears to be an undescribed species of aphis which infests the stalks of lettuce in our gardens. This in my manuscripts is named

The LETTUCE-LOUSE APHIDIUS (*A. Lactucaphis*). It is deep black with legs tinged with brownish, their bases and knees very slightly paler; the abdomen long obovate, flattened, rather narrower than the thorax, its apex rounded; antennæ almost as long as the body, 19-jointed, second joint smallest, globular, third joint longest with a slight constriction in its middle, the succeeding joints successively shorter, the last scarcely longer than the preceding one, long ovate; wings slightly smoky, outer marginal vein and the vein bordering the cell beyond the stigma black, the outer veins brown, stigma dusky white. Length 0.06 to the tip of the abdomen.

One of the prettiest species which I have met with was bred from aphides upon the spotted knot-weed (*Polygonum persicaria*), and may be named

The KNOT-WEED APHIDIUS (*Praon Polygonaphis*). It is black and shining with a slender elliptical abdomen of a bright sulphur-yellow color tinged with dusky above and at its tip beneath, with broad clear yellow bands at the anterior sutures, its base being narrowed into a short cylindrical pedicel, which with the legs and bases of the antennæ are of a bright reddish or beeswax yellow color, the tips of the feet being black; its antennæ are inserted on slight broad elevations upon the front of the head and are 17-jointed, the two short basal joints being a third thicker than the following ones, which are equal, cylindric, four times as long as they are thick, the last rather longer than the preceding, its apex abruptly rounded. Length 0.08, wings expand 0.15.

Another species is a common destroyer of a species of aphis which infests the fruit stems of the high cranberry, (*Viburnum*

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Opulus, var. Americanum). These stems are often covered wit lice, and the aphidius discovering them passes from one indivi dual to another, dropping an egg into the body of each. Th whole colony is thus destroyed by this parasite alone, the dea swoolen bodies of its victims remaining upon the stems crowde together as closely as they can stow themselves. I name thi species

The CRANBERRY APHIDIUS (*Praon Viburnaphis*). It is black and shining, wit the short abdominal pedicel and the anterior legs wax yellow, their feet blackish a the tip, the hind knees yellowish; antennæ 15-jointed, the basal joint wider tha long, the second nearly globular and slightly thicker than the following ones, the las not larger than the one preceding it; wings hyaline, veins outer margin and stigm black and shining. Length 0.075, wings expand 0.15.

In the following species the veins are fewer in the fore wing and do not form any closed cells in the disk; there is merely a short robust curved vein from the inner angle of the stigma directed towards the apex and ending abruptly, and a vein running obliquely from the mid-vein to the outer margin forward of the stigma. These pertain to the genus *Trioxys*.

The latter part of June the present year the willows in this vicinity were overrun, and many trees were almost defoliated by an undescribed species of aphis. But in a short time these insects were all destroyed by their enemies, and the under surface of the leaves were thickly covered with the swoolen gray bodies of those which had been killed by parasites. These yielded the following species:

The WILLOW APHIDIUS (*Trioxys Salicaphis*). This is black and shining, with a long elliptical abdomen, of a honey-yellow color at its base gradually passing to black on its posterior part; legs honey yellow, tips of the feet and of the shanks and sometimes the outer sides of the thighs dusky; feelers honey yellow; antennæ black two-thirds as long as the body, 13-jointed, the third and following joints nearly equal, cylindrical, thrice as long as wide; stigma dusky. Length with the abdomen in its usual arched posture 0.06.

The POPLAR APHIDIUS (*Trioxys Populaphis*) is black and polished, the abdomen long elliptical and much narrower than the thorax, the basal sutures sulphur yellow legs sulphur yellow, the hind thighs black; antennæ nearly as long as the body 15-jointed, third and following joints about equal, cylindrical, the last joint rather longer and thicker, oval with its apex rounded; stigma dusky, veins and outer ma

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gin of fore wings blackish. Length about 0.07. Hatched from an undescribed aphis infesting the base of the leaves of the Balm of Gilead (*Populus candicans*).

But without dwelling longer upon this interesting group of insects which render us such important services, we close with a notice of a species which destroys the aphis of the garden cherry, and which differs from all the foregoing in its residence when in the pupa state. As if fearful that the beak and feet of the dead aphis would not hold its swoolen body securely to the smooth surface of the cherry leaf, the worm of this species when ready to enter its pupa state perforates the abdomen of the aphis upon its under side, probably as soon as its life is extinct, and spins a cocoon for itself between the leaf and the body of the aphis, the leaf forming the floor of the room for its residence, the abdomen of the aphis forming its roof, and a gray paper-like membrane which it weaves constituting the sides and attaching the body of the aphis securely to the leaf. The walls of its domicil are so thin that the inclosed pupa can sometimes be seen faintly through them, of a bright yellow color.

The Cherry Aphidius (*Trioxys Cerasaphis*) is black with its palpi or feelers and legs pale yellowish brown; antennæ almost as long as the body, 18-jointed, the third and following joints equal, cylindric, thrice as long as broad, the last elongated ovate; abdomen elliptic, rather narrower and shorter than the thorax, scarcely pedicelled at its base, shining, tinged with brownish; wings pellucid, stigma smoky white. Length 0.07.

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The *larva* when full grown measures about half an inch in length. It is almost cylindrical, sixteen-footed, of a very pale green color, divided into fourteen segments by rather deep wide transverse constrictions. It has two rows of elevated white spots along the back, and one along each side, each segment having one spot in each row, or four spots in all, and between the spots is a smaller white elevated dot, and another similar dot below the lower spots. From each of these elevated spots and dots white bristles of different lengths stand out in all directions.

Two of these worms which I inclosed in a breeding cage had changed to pupæ on the 25th of June, one suspending itself from the gauze top of the cage, and hanging obliquely downwards, the other attaching itself to the glass side of the cage, having first spun several short threads here and there upon the surface of the glass as if to ascertain whether they would adhere to it, and then making a small patch of numerous threads, into which to insert the minute hooks at its tail, whereby to suspend itself. The relics of its larva skin, forming a little lump of fine hairs, remained adhering to the glass, downwards and to one side of the spot where the pupa was attached, being as far off as the length of the insect enabled it to reach. After releasing itself from this skin the pupa had turned to the opposite side, and thus remained hanging stiffly downwards and outwards from the surface of the glass, resembling the dead fragment of a little scraggy twig. It is of a slender conical form, obliquely truncated at the head, and has two long compressed horns placed side by side and jutting upwards from the middle of its back. Numerous smaller projecting points and ridges diversify its surface, a particular description of which would occupy a page or two. I therefore limit myself to a recital merely of some of its most prominent marks.

The *chrysalis* is about 0.35 long and 0.08 in diameter. About the mouth and head are divers raised lines and projecting angular points. The obliquely truncated face is convex or gibbous in the middle, and here commence two elevated carinæ or sharp edged ridges which extend backwards nearly parallel with each other to the middle of the back, where they shoot upwards into the compressed horns already spoken of. Their length is equal to half the diameter of the body. Viewed laterally their outline is egg-shaped, with the edges irregularly toothed and the apex drawn out into a long sharp thorn-like point. Forward of these horns the raised lines are more elevated in the middle of each segment, where they present two small tooth-like spines, the anterior one larger, and also two short diverging white bristles which are club shaped or enlarged towards their tips. And on the five abdominal segments next back of the horns and in a line with them is a row of spines, one on each side of each segment near its middle, which spines are inclined forward, and each has a

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slight tooth upon its posterior face, and two short diverging club-shaped w bristles. Lower down upon the sides is a row of slight oblong elevations, on each segment, below which the breathing pores form a row of minute round po and below these an obtuse angular edge divides the lateral from the under side. the under side are four longitudinal rows of short white club-shaped bristles, incl backwards, two bristles at each point. Between the two inner rows of these bri are two rows of small, elevated, wart-like pimples, which are the scars left by pro-legs of the larva. The legs, antennæ and wings are enclosed apparently common sheath, the forked veins of these last forming faint elevated lines upon smooth outer part of the sheath. The crysalis varies in color. One of the specir was bright pale green with a deeper green stripe along the middle of the back, the long horns and a spot on the crown of the head dull brownish yellow. The o was pale brownish yellow throughout, with a black stripe along its middle.

These insects remained at rest in their pupa state only six a eight days when they hatched moths, pertaining to the ge *Pterophorus* in the family ALUCITIDÆ and the order LEPIDOPTE The moths of this family are distinguished from all others having their wings singularly cleft into two, three or more l narrow lobes, whence they were termed *Fissipennes* or Sp winged moths by Latreille. The lobes are densely ciliated w fine hairs, which, along their inner margins are very long. Tl thus resemble the feathers of a bird, and have hence in Engl received the name of Plumes. Their legs are long and slend and are furnished with long robust spines, of which there i single one at the tip of the forward shanks, and a pair at tip of the middle shanks, whilst the hind ones have a pair at tl tips and another near the middle.

The names of all the species belonging to this family are cc pounds ending with the word *dactylus*, meaning a finger; L næus at first, when but a half dozen species were known to h (Systema Naturæ, 10th edition, 1758), having supposed tl could all be distinguished merely by the number of branches of their wings, he hence numbered them two-finger five-fingered, &c.; and at a later period, when two or m species were discovered which were alike in the number their lobes, he named these wing-fingered, square-fingered, The species of which we are speaking, at each pair of spines, tufts of scales of a tawny yellow color surrounding its hind

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like a garter, and as its wings are also banded, the name *periscelidactylus* or Gartered Plume, may appropriately be given to it.

Like other species of this family, this moth is very agile, rapid, and impetuous in its motions, when disturbed, bounding from side to side of the cage in which it is confined, almost with the velocity of lightning, for a moment, and then resting, clinging with its four anterior feet to the top of the cage, its wings spread and its body hanging perpendicularly downwards and swinging to and fro with the wind, with its long hind legs extended as if to protect the sides of the abdomen, and the feet nearly in contact below its tip. It is of a tawny yellow color, the fore wings with three white spots and beyond these two white bands, the fringe white with a blackish spot on the middle and another on the apex of the inner margin.

This moth measures 0.35 to the tip of its abdomen, and its wings expand 0.85. Its antennæ are 0.20 long, black, with a row of small white spots on each side running their whole length. The palpi, which curve upwards in front of the head to a level with its crown, resembling two little horns, are tawny brown or rust-colored in front, their bases whitish. The thorax is tawny yellow, white at its base. The three first segments of the abdomen have a white spot at their bases and the third has two diverging white stripes which reach its apex. The fourth segment is without spots and of a darker color, its apex blackish. The remaining segments have two parallel white stripes which are faint or obsolete on the base of each segment. Beneath, the abdomen is snowy white with two tawny yellow stripes, or tawny yellow with three rows of large white spots confluent into stripes at the base. Legs white; haunches with a tawny yellow stripe on their outer side; four anterior legs with black stripes; middle shanks with a projecting spine-like tuft of tawny yellow scales above their middle, and encircled at tip by a darker colored tuft; hind shanks with a similar tuft at each pair of spines; spines black beneath and at base, those of the hind shanks black at their tips also. Feet white, apical joints of the four anterior ones, and a band on the apex of each of the other joints tawny yellow. Fore wings bifid, the cleft reaching almost to their middle, tawny-yellow, with two oblique white bands crossing both their forks, the space between these bands often rusty brown; a transverse white spot at the commencement of the cleft, edged on its inner side with rusty brown; two white spots inside of this, the first towards the outer the second upon the inner margin. Fringe white with a blackish spot on the middle and a larger one at the apex of the inner margin. The inner lobe of the wing between the black spot and its tip notched in the form of a semicircle, with a blackish line upon the base of the fringe in this notch. Hind wings trifid, the anterior cleft reaching their middle, the posterior one extending to the base; rusty brown, tawny yellow at base; hind lobe slender, white and fringed with white with a broad blackish band near its tip.

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wards their tips brownish black. An oblique tawny yellow band ending in white on the outer margin extends across the outer lobe near its base, and on the apex of the outer margin is a white stripe. The fringe along their inner margin is blackish, with a few white hairs forming a small spot at its apex, another white spot forward of it, a larger one towards the base of the inner lobe, and a small one forward of the base of this lobe. The hind wings and their fringes are blackish brown, and the inner lobe near the middle of its inner side sends out some coal black scales forming a spot of this color in the fringe, with a faint ash gray spot immediately forward of it. Beneath, the wings are blackish brown and the anterior pair have three equidistant white streaks on the outer margin, the first rather forward of the middle and the last on the apex; the outer lobe of the hind wings has a white spot near its tip, the inner lobe has a slight white spot on its apex and another on the middle of its inner margin. The antennæ are black with white rings, and on their under sides ash grey. The abdomen has white stripes on its under side. The legs are striped alternately with black and white and are banded with a broom-like tuft of black scales at each pair of spines. The spines are white, their bases, under sides, and also the tips of those on the middle shanks, black. The feet are white with a black band on the apex of each joint, and the first joint of the two anterior pairs has a black stripe on its outer side. The wings when spread measure 0.80 from tip to tip. Taken the last of June on bushes in meadows.

The Slender-lobed Plume (*P. tenuidactylus*) is of a dark tawny brown color somewhat tinged with coppery red, and on the fore wings has a white spot towards the base of each lobe, and often on the outer lobe a transverse white streak between the spot and the apex; their fringe is whitish, with a black spot in the middle and larger one at the apex of the inner margin. The hind wings are of the same color, their lobes very slender, the inner one thread-like, white, its fringes white with a broad black band near the tip. The legs are white, striped with black, the feet and hind shanks with black bands. The antennæ are white with a slender black ring to each joint. The abdomen is blackish, and at base on the under side silvery white. The wings when extended measure 0.60 across. This species is common upon brakes and other weeds growing in swamps in the middle of July.

The Ashy Plume (*P. cineridactylus*) is ash gray throughout, of a darker tint upon the breast. The fore wings are sprinkled with blackish brown atoms, chiefly towards the inner margin and the base. The antennæ have a pale brown ring on each joint, which is widely interrupted on the under side. The feet and shanks are whitish and the hind shanks have a faint brownish band at tip and another on the middle. The expanded wings measure 0.75. Taken the fore part of July, in yards around dwellings.

The Brown-bordered Plume (*P. marginidactylus*) is tawny brown, the fore wings varied with white cloud-like spots, whereof there is one on the outer margin towards the tip and two on the inner margin, the apical and outer margins and a cloud-like central space extending from the cleft inwards are of a dark brown color; fringe whitish, brown at the outer and inner apical angles, and a small brown spot beyond the middle of the inner margin; under side and hind wings pale tawny brown; legs white, thighs, anterior shanks and apical third of the hind shanks brownish on

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INFESTING INDIGENOUS FRUIT TREES.

THE HICKORY.

AFFECTING THE TRUNK AND LIMBS.

Boring large holes, lengthwise in the heart-wood; a long, soft, whitish, flattened grub.

THE TIGER CERAMBYX. *Monohammus tigrinus*, DE GEER. *M. tomentosus*, ZEIGLER.

The insect which we are now about to consider is one of the largest and finest of our American insects pertaining to the family CERAMBYCIDÆ or Long-horned beetles. Hitherto it has not been known in what kind of wood the larva of this species occurred. Indeed, the insect itself is rarely met with in collections, having been captured only in the State of Pennsylvania. But from the numbers of its burrows, which I find in almost every hickory and walnut tree which I have had an opportunity of examining, I am impressed with the belief that this is a much more common insect than has been hitherto supposed, and now that the trees which it freqents are known, it will probably be readily found, over a considerable extent of our country.

Some hickories and bitter walnuts which were split for fuel at my door, gave me opportunities for observing the extensive excavations made by this borer and by the ants next to be noticed, which take up their residence in the burrows which this worm forms. The trees alluded to had stood solitary in the open fields, a situation in which all trees are much more liable to be infested with insects than when growing together in forests. And though to external appearance, these trees were sound and healthy, they

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mit. And when the beetle hatches from its pupa, it tears away the fine powder above it, as it crawls forward, which powder thus falls down upon the cushion of woody fibers, where we meet with it in the evacuated cells—and breaking through the bark, it emerges from the tree.

What is here described seems to be the common habit of most kinds of our timber borers. They complete their burrow by gnawing a passage out to the bark, and then retire backwards a short distance and stuff this upper extremity of the burrow with their castings, that birds, especially the woodpecker, may not be able to detect, by its hollowness, the hole which they have here formed under the bark. But this artifice is not always successful. Mr. P. Reid informs me that he once observed in the trunk of a sapling, a funnel shaped opening which had been dug by a woodpecker, some two inches in depth, at the bottom of which, incased in the wood, was the shell-like relics of a pupa which the bird had devoured, and below was the track by which the worm had come upwards in the wood to this point. At first he was excessively puzzled to account for this phenomenon—by what instinct or other faculty it was possible for a bird to discover a worm which was buried two inches deep in the wood, so as to be able to bore directly inwards to the exact point where it was lying—until it occurred to him that the worm had itself made an opening outwards to the bark, by which to effect its escape after its changes were completed, and had then retreated backwards into the wood again; and the woodpecker by tapping upon the bark had ascertained that there was a cavity beneath, and immediately thereupon opened and enlarged this cavity sufficiently to enable him to reach the insect. What curious habits, what astonishing instances of foresight and intelligence do we daily meet with in studying the works of nature, all concurring to show that these myriads of creatures, each furnished with its peculiar organs, and endowed with such marvellous faculties and instincts, could have been formed no otherwise than by a Creator who is infinite in his attributes.

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Except in those cases where its burrow is taken possession of

by ants, the exterior opening which is made by this beetle when it crawls out from the tree, soon closes up, leaving a round, ragged scar upon the smooth back of the bitter walnut and the limbs of the shag-bark walnut, which is visible for many years afterwards. Two of these scars are represented in the annexed cut. By the occurrence of these scars upon the bark we may be able to ascertain what trees have been infested by these d other borers, and will consequently have the wood perforated h holes and unfit for any valuable use.

Neither in Dr Ratzeburg's celebrated work upon forest insects any other author which I have at hand do I find any account the larvæ of the important genus of wood-boring beetles to ich this species pertains. I therefore give a more full and ticular description of it.

he LARVA when full grown is somewhat over an inch in length and a quarter of nch in diameter across the second or broadest segment. It is a soft, smooth and tly shining worm of a cream yellow color and a cylindrical form, slightly bulged and broader at the thorax, and is divided into thirteen segments by strongly impressed transverse lines, the sutures of the abdominal segments being more wide than those of the thorax. The nine breathing pores upon each side form elliptical pale yellow spots with a dark chesnut colored line in the centre of each; the first pore is situated in the suture at the base of the second segment, the others are near the middle of the fifth and each of the following segments. A faint darker stripe extends along the middle of the back and is interrupted at the sutures, and upon the top of each segment pt the three first and two last is a transverse oval space composed of somewhat ular rows of small elevated points, one row forming a ring upon the outer mar- f the oval space and one or two other rows running transversely across its disk. ath, upon these same segments is a similar oval space, but the elevated points are rather more confused and indistinct. The second segment is longest and the next are shorter than any of the following ones. The second segment upon its r side is flat and inclines obliquely downwards and forwards; it is clothed with fine n hairs, and similar hairs are scattered along the sides of the body; across its le is an impressed transverse line forming the arc of a large circle, the ends of h line are turned backwards and are continued to the basal margin by a smal circular impressed line Th anterior part of this segment is of a pale tawny , with numerous minute punctures, its basal part has coarser punctures an impressed longitudinal lines which are more or less confluent with each othe

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The head is retractile within and but half as broad as the second segment, and is coal black except at its base, the black being edged posteriorly with chesnut brown. The upper lip or labrum is transverse oval, rather broader towards its base, honey yellow, and covered with short yellow hairs which incline forwards. The upper jaws or mandibles are robust, with an angular obtuse tooth-like projection near the middle of their inner sides, their tips being simple and rather blunt. The antennæ are minute conical two-jointed points projecting outwards at the base of the mandibles and distant from the base of the head. The feelers are thrice the size of the antennæ, conical, three-jointed and of a chesnut brown color; the lobe of the lower jaws or maxillæ projects at the inner base of the feelers and is more than half their length and clothed with short dense pubescence. The feelers of the lower lip or the labial palpi are minute but perceptible. The throat is whitish, the suture at the base of the oral organs black edged posteriorly with chesnut brown. The apical segment of the body is divided into two parts by a transverse impressed line, and might, as in many other larvæ, be counted as two segments, the last one being much more narrow and short in this insect.

The celebrated Swedish entomologist, Baron De Geer, long ago published a description and figure of this beetle in the fifth volume of his Memoires on Insects, page 113, under the name of *Cerambyx tigrinus*, or the Tiger Cerambyx, a name suggested perhaps from its size and colors. It has lately been described by Rev. D. Ziegler, and by Prof. Haldeman, under the name of *Monohammus tomentosus*, or the Wooly Cerambyx, which name, however, must give place to that which was previously bestowed. Some of the descriptions that have been published have evidently been drawn from imperfect specimens, denuded of their pubescence in places.

The medium length of this beetle is about one inch, though, like most other Long horned beetles the two sexes differ much in size, the males being often only 0.85, whilst the females are 1.15. The ground color is brown, sometimes tinged with reddish or on the elytra with pale yellow; and the surface is covered beneath and for the most part above with fine short appressed hairs of an ashy or a tawny-yellowish white color. The head is punctured, at least on its summit, and has an impressed line in its middle. The mouth is of a honey-yellow color above and beneath, the upper lip being hairy and blackish except at its anterior edge, and the mandibles are deep black, their bases brown. In the notch of the eyes is an elevation on which the antennæ are inserted. These are rather shorter than the body, eleven-jointed, the second joint very short and more broad than long; the basal joint is double the thickness and but half the length of the third joint, which, with those that succeed it are about equal in length and gradually diminish in thickness. The two basal joints are brown, all the others whitish or pale yellow and stained with brown at their tips. The thorax is everywhere covered with short appressed hairs, which are more dense beneath, and has on each side in the middle, a conical erect spine rounded at its apex. The scutel is brown, its apical half covered with whitish or light yellow hairs. The

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elytra are covered with similar appressed hairs on the middle and posterior leaving a broad brown band behind the middle (which is interrupted at the and sometimes does not attain the outer margin), and at the base a similarly band, which, posteriorly, is gradually shaded and without any definite edge anterior half of the elytra is punctured, the punctures black and becomin dense and coarse towards and at the base, where they open backwards and hav anterior edges elevated into little callous points, rendering the surface roug shagreened, each puncture yielding a short black bristle. The hooks of the fe pale yellow.

Mining long narrow passages in the trunk and limbs, and staining the wood light l a longish, black, shining ant, its abdomen with equidistant transverse rows bristles, two rows upon each segment.

THE WALNUT ANT. *Formica Caryæ.*

The fact is reported in the Albany Cultivator (1853, page by C. B. Brown, of Damascus, Pa., that a house that was ove with ants had been rid of this pest by placing a piece of s bark hickory wood upon a shelf in the pantry where these min appeared to be the thickest. The ants gathered upon billet of wood in the course of an hour or two in such num as literally to cover it, whereupon they were brushed and sha off into the fire, and the stick was replaced to collect ano swarm; and in this mode the house was soon entirely cleare them. No reason is assigned for the ants being thus attractec this wood, but there can be no doubt that the sweet syrup-sap of the hickory was more congenial to their taste than other food within their reach, and was the cause of their coll ing together in the manner stated. And it is quite probable a recently cut piece of hickory wood may prove in other c one of the best traps for these pests, which occasionally bec quite an annoyance in our dwellings. Hickory and walnut t whilst growing are also a favorite resort of these insects, and have one American species which appears to be a constant dent upon them, to the great injury of the trees. In the wi season I have repeatedly met with little clusters of this ant, w searching for insects under the loose scales of bark of the hick and on coming recently to work up some of these trees for these same ants were found in the wood, occupying most of galleries which the tiger cerambyx had bored therein, which

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leries they had extended and connected together by their own mining labors. These passages were extended every where through the wood of the trunk and branches, often running out even into the small limbs less than three inches in diameter.

Our other wood-eating or carpenter ants (*Formica Pennsylvanica ligniperda, &c.*) seem to reside only in the dead wood of the interior of trees and in the timbers of our buildings, but this species is of a more pernicious character, attacking the sound wood of living trees. Its burrows are long narrow passages, never widened into those spacious apartments which our other carpenter ants excavate. Sometimes portions of dead wood in the heart of the tree and at its butt will be met with, mined in a different manner, large chambers and galleries being excavated which are separated by partitions no thicker than pasteboard; and not unfrequently a few dead individuals of the Pennsylvania ant, which is a larger species, may be found lying in these galleries, showing that these apartments were constructed by them and not by the walnut ant. And it appears to be a common occurrence for a colony of the Pennsylvania ants to establish themselves in the dead wood of the walnut, and to be afterwards so encroached upon by the more numerous and thriving colony of the walnut ants that they abandon or are driven from the tree, for I have never met with any living individuals of this species in these cavities, which had manifestly at some previous period been excavated by them.

It has been remarked of one of the European ants (*Formica fuliginosa*) that the sides of its burrows are always of a black color, and our American ant has a similar habit. It paints the walls of its rooms, as we may say, of a butternut or snuff brown color. Huber could not satisfy himself whether the black color of the wood occupied by the European ant alluded to was caused by its being exposed to the air, by some vapor emanating from the bodies of the ants, or by its being acted upon and decomposed by the formic acid which ants secrete. To us it appears that the last of these is probably the cause, for with our species this discoloration is not confined to the surface of the burrow, but penetrates through the wood surrounding it on all sides, to the dis-

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tance of an inch or more. This discoloration will be observed in every part of the trunk and limbs of the walnut tree, wherever the burrows of these ants occur. And it seems quite probable that the ant by thus saturating the wood with acid, hastens its decay, in order to adapt it for being more easily mined. If we are correct in this supposition, this curious faculty which our walnut ant possesses of softening the wood in order that it may be able to gnaw and excavate it more readily, renders this species much more injurious than it otherwise would be.

It is commonly stated of the insects of this family that males and females are developed only in the summer, and that it is the neuters alone that are to be found at other seasons of the year; but of this species I meet with all three of the sexes, in a torpid state in their burrows, in the winter season. Those parts of the burrows where the ants were present had their walls quite wet, probably from the perspiration given off from their bodies. And nestling in this wet surface a few larvæ of the ants were also met with.

These *larvæ* were very small footless grubs, measuring from 0.03 to 0.08 in length, the largest individuals being about 0.03 in diameter. They are of a cylindrical form, but always lie with the body doubled together in the form of the letter U, or in the larger individuals with the head bent downwards against the breast. They are of a white color, shining and semipellucid, with a blackish cloud in the center of the body from alimentary matter in the viscera. The surface is covered with numerous shortish white hairs, and the segments are marked by transverse impressed lines, which are much more obvious in the large than in the small individuals. No projecting jaws can be discerned at the mouth.

Upon the wet surface of the walls of the cavities occupied by these ants, extremely minute ticks may also be met with, numerous in particular places, and of a pale red color, bearing some resemblance to a minute Coccinella or Lady-bird. These, it is probable, are parasites living upon the ants. They are similar in their form, texture, &c., to the common Beetle-tick (*Gamasus coleoptratorum*, Lin.), but the hard shining plate covering their backs consists of one piece only. They consequently pertain to the genus *Uropoda* of Latrielle, and the species may appropriately be named *Formicæ*, or the Ant-tick. Of the species figured in Baron Walckenaer's Atlas of Apterous Insects, it bears the closes

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resemblance to that of *Uropoda vegetans* (Pl. 34, fig. 6), a species which is quite common upon several of our American beetles.

The ANT-TICK measures from 0.010 to 0.015. It is of a cherry red color, younger individuals being translucent and pale reddish; it is shining, with translucent legs clothed with short hairs. It is of a circular form, very slightly longer than wide, flattened, and commonly presents a translucent margin. The legs are shortish, taper gradually, and the feet are not half the thickness of the shanks. The anterior legs have not the slender feet of the three other pairs, but are antennæ-like, and have at their tips several short coarsish hairs and a single bristle slightly longer than these hairs. The palpi or feelers rarely project beyond the anterior margin, and their tips are also clothed with short hairs.

This ant appears to be a distinct species from those which have been heretofore described, and I therefore propose for it a name in allusion to the situation in which it occurs. It may be distinguished by the segments of its abdomen being glabrous and polished at their bases and minutely punctured on their posterior half, with two transverse rows of fine erect bristles, one in the middle the other at the tip of each segment. The Silky ant (*Formica subsericea*) described by Mr. Say in the Boston Journal of Natural History (vol. i. p. 289), is closely related to this species, but is destitute of punctures on the abdominal segments.

The MALES of this species measure 0.30 to the tip of the abdomen which is about 0.08 in diameter, 0.32 to the tip of the closed wings, and the wings spread 0 45. They are black and shining. The head is nearly globular, and there are, as usual in this sex, three distinct ocelli or little eyes upon the crown, and from the anterior one of these a fine impressed line runs forward to the face. The face is rough and unequal, with impressed punctures, from each of which arises a short hair. The tips of the jaws are tinged with brown; the upper lip is blackish-brown or sometimes cinnamon-yellow; the feelers are long slender and thread-like, and clothed with fine short hairs; the antennæ are long and slender, of equal thickness, their tips with an ash-gray reflection. The thorax is slightly broader than the head, oval, smooth, and without punctures or hairs. The abdomen is somewhat wider than the thorax, and composed of seven segments, of which the basal one is contracted as usual, forming a slender pedicel, with an erect hump or scale on the middle of its upper side, which, viewed laterally, is of a wedge-shaped form, short and thick, and bears a few short hairs; its summit is cut off transversely and is distinctly notched in its middle. The remaining segments form a regular oval mass, rounded at base and pointed at tip. The basal third or half of each segment is glabrous and shining, the remainder is minutely punctulated and clothed with fine short hairs, scarcely perceptible, whilst on each segment are two transverse rows of fine bristles which are sometimes interrupted along the middle of the back, one row on the posterior margin the other near the middle, these bristles arising from rows of equidistant punctures. At the tip

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of my readers. About fifteen years ago I first noticed a tree upon my farm which was severely affected by this disease, and which has continued to suffer from it annually down to the present time. Within two rods of this tree are two others which have remained wholly unaffected, and have regularly produced a fair yield of fruit, whilst not a single nut has been matured upon the diseased tree. The excrescences upon the limbs at the time of gathering the fruit in autumn, which was the only time I had heretofore noticed them, are black, ragged, leathery and cup-shaped, having a marked resemblance to some of the species of fungi of the genera *Peziza*, *Cenangium*, and their kindred. But whether they really were of a vegetable nature or were the work of insects I was unable to determine from their appearance at that period of the year. Mr. T. B Ashton having recently informed me that he had always met with the Elegant weevil (*Conotrachelus elegans* Say), a species most nearly related to the Plum weevil (*C. Nenuphar* Herbst), exclusively upon these diseased hickory trees, although I had myself captured it upon butternut, hazlenut and other foliage, I resolved the present year to investigate these excrescences at the commencement of their growth, and ascertain their cause, not knowing but it might throw some light upon the mooted origin of the black knots upon the plum and cherry. I have been successful in this examination, and have ascertained that although these excrescences are of insect origin, the weevil alluded to has no direct connection with them, and if it really is more common upon these diseased walnut trees than elsewhere, as Mr. Ashton's observations indicate, it is only because, like many other insects, it prefers diseased and weakened vegetation to that which is healthy and of rank vigorous growth.

The insect which forms these excrescences is a female plant-louse, and her proceedings and the effect which they produce is truly wonderful. Hatching probably from eggs that were laid the preceding autumn, each individual, early in the season, stations herself at a particular spot, either upon the mid-vein of one of the leafets, upon the leaf stalk, or still farther down, upon the green succulent twig which is the growth of the present year.

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mining cylindrical channels in it. This larva is about the tenth of an inch long, shining watery whitish, with a pale yellow cloud in the middle of its body, from visceral matter in the intestines, and a flattened polished pale tawny head with the jaws appearing like two brown dots on its anterior edge. It has no feet, and to crawl forward it elongates itself and with its jaws grasps the spongy side of its burrow, and then contracting, it draws its body up towards its head. By this singular mode of progression it moves along with rapidity in its burrow, but when placed upon paper it strives in vain to lay hold of the smooth surface with its jaws, and is incapable of advancing. It is quite probable that this worm is the larva of the Elegant weevil above spoken of.

It would be supposed that the lice which occupy these galls, being wholly shut in as they are by a thick wall upon every side, would be secure from the assaults of the numerous and inveterate enemies of the aphides which have been noticed in the preceding pages. But in one instance, four worms, which from their appearance and motions I supposed to be the larvæ of a Syrphus fly, were met with in one of these galls. They were the tenth of an inch long, of an elongated oval form, more pointed anteriorly, and of a pale rose-red color, with a broad yellow stripe in the middle from inclosed visceral matter.

Though I have not been able to find winged individuals of the insect which forms the galls upon the hickory twigs, it is so like the *Pemphigus bursarius* of Europe in its habits, a species which forms similar galls upon the leaf stalks of the poplar, that I entertain no doubt our insect is co-generic with that species. We have still another species which is closely related to these in its habits. It is the grape leaf louse (*Pemphigus Vitifoliæ*) of my manuscripts, and forms small globular galls about the size of a pea, upon the margin of the leaves of the grape vine. They are of a red or pale yellow color, and their surface is somewhat uneven and woolly. They are met with the fore part of June, having only the wingless females inclosed within them at that time. These closely resemble the same sex in the species under consideration.

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hairs with which it is clothed, is the hickory tussock-moth. And any one who is desirous of rearing an insect in order to inspect the remarkable changes which it undergoes as it grows up to its perfect state will succeed better with this, probably, than with any other species. One or more of the caterpillars placed in a tumbler or a box, and supplied with fresh leaves two or three times a week, will require no further care. So hardy are they that they will even feed upon leaves which are dry and brittle, and their cocoons may be kept in a warm stove-room during the winter without the inclosed insect withering from the dryness of the atmosphere.

Although the hickory and walnut appear to be the trees of which these caterpillars are most fond they are by no means limited to them. Dr. Harris records his meeting with them upon the ash and elm, and I have found colonies of the young worms upon the butternut, the sumach and the slippery elm. They hatch from the eggs early in July, and whilst young they remain together, a hundred or more in a company, all being probably from one parent. They occupy a leaf near the end of a limb, forming for their residence a slight covering or tent made of the fine silken threads which they spin. If the limb is jarred most of them let themselves down from it by means of their threads, some dropping to the ground, others remaining suspended in the air at different heights. They have their regular periods for feeding and reposing. They consume the whole of the leaves where they reside, leaving only the mid-veins and some small fragments of the green tissue remaining. The annexed figure is taken from a leaf partly consumed by them. If when engaged in feeding a fly or other insect annoys it, or even if the rays of the sun shining through the foliage happen to fall directly upon it, it moves away to another place; and if when thus crawling away its hairs touch

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solitary. The state of the atmosphere influences them somewhat as to the time of spinning their cocoons. Ten worms which I reared in a cage together from their infancy, after a period of severe drouth, on the occurrence of a rainy day the second of September, spun their cocoons simultaneously, all save one, which performed this labor ten days earlier. When ready to form its cocoon the caterpillar crawls into some secure cavity, in the crevices of a wall or beneath a stone, to which the cocoon is very slightly attached. From this the winged moth is given out the following spring, though when reared in a dry room I have known individuals to come forth in their winged state the latter part of October and in November. These moths pertain to the family ARCTIIDÆ or the Tiger-moths. They cannot be referred to any of the genera defined by the European naturalists, and Dr. Harris (New England Insects, p. 279) has therefore constructed for them a genus which he names *Lophocampa*, a word meaning crested caterpillar. He indicates four species pertaining to this genus, and the caterpillars of two additional species are known to me.

The COCOONS of the hickory tussock-moth are of a regular oval form, nearly an inch long and over a half inch broad, of an ash gray color, composed exteriorly of the short stiff hairs of the caterpillars, woven loosely together and with their points standing in all directions, so that it is impossible to touch one of these cocoons without having the skin filled with these hairs, resembling cowhage and producing the same irritation of the skin which that substance causes. The pencils of long black hairs of the caterpillar are separated and drawn in among the others so skilfully that the eye is seldom able to discern their color. The whole are held together by a thin clothlike fabric formed of white silken threads matted closely together which lines the cocoon upon its inner side. Its texture is so slight that when the moth is ready to leave the cocoon, by merely crowding its head forward it ruptures it at one end and forms a round orifice through which it makes its exit, elongating the cocoon slightly hereby, at this end, as represented in the accompanying figure.

The CHRYSALIS or Pupa lies in the cocoon with the black head and other relics of the larva at its pointed end. It is 0.70 long by 0.30 in diameter, of a pale chestnut color, its sutures marked by slender black impressed lines and the breathing pores forming a row of seven oval black dots along each side. Its surface is smooth, without those rows of little spines which we see in the pupa of the peach borer and several other moths, and the empty shell remains within the cocoon after the moth is disclosed. The figure presents a dorsal view of the sutures, breathing pores, &c., but is unduly contracted on the anterior half, the width here being the same as across the middle.

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legs into a distinct genus under the name *Cinara*. But we have certain American species inhabiting the leaves of the hickory, oak, and high cranberry, which differ so much both in their form and habits from the general character of these insects, that they will probably be regarded as entitled to the rank of an independent genus. Having the last joint of the antennæ shorter than that which precedes it, they would be included in the last section of M. Amyot's arrangement, the type of which is the *Aphis Tiliæ*. But, from specimens of this species received from Dr. Signoret of Paris, and the descriptions given of it by M. Fonscolomb and others, our American insects differ in several important points. Their wings are not elevated in the usual steeply inclined manner but are laid flat upon the back in a horizontal direction; their bodies are strongly depressed; their nectaries are merely pores without any perceptible elevation, though in one instance, examined when a globule of honey dew was protruding, the end of an exceedingly short cylindrical tube could be discovered with a lens, which tube appeared to be retracted and became imperceptible soon after. Their secretion of honey dew appears to be quite limited as compared with other aphides, nor do they extract a sufficient amount of juices from the leaves to cause any very perceptible distention of their flattened abdomens. They do not remain fixed to the leaves with their beaks inserted therein, but are wandering over its surface much of the time, nor do they live in societies like other aphides, only a few being met with upon the same leaf, and these are scattered upon its under side, chiefly along the sides of the midvein, in the angles where the lateral veins are given off from it. Ants, moreover, are never met with accompanying them.

These aphides are smaller and of a more tender delicate appearance than their kindred. Most of the species are of a pale yellow or white color, with black rings upon their antennæ, and their legs and wings are frequently varied with black or brown marks, which are much more clear and distinct than is usual in this family, the species of which, Linnæus well remarks, are difficult to distinguish and more difficult to describe. That which is

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ty of the stigma and forward of its furcation curves perceptibly towards the apex of the wing; the fourth vein is longer than the second fork.

THE LITTLE SPOTTED-WINGED APHIS (*A. maculella*) differs from *Caryella* in having only a slender black ring at each articulation of the antennæ, the feet and a band near the tips of the hind thighs blackish, the stigma salt-white, its base black, its apex dusky; fourth vein with a black dot on its base and a dusky one on its apex; the first vein, apical third of the second vein, and the first and second forks broadly margined with smoky brown; second vein wavy and parallel with the third vein till near its tip where it curves towards the first vein, its base a third nearer the third than it is to the first vein; third vein arising from the anterior extremity of the stigma, with a dusky spot on its apex.

THE LITTLE SMOKY-WINGED APHIS (*A. fumipennella*) is of a dull yellow color with blackish feet and the wings smoky with robust brown veins, the rib-vein much more distant from the margin the first half of its length than in the other species, and from its middle to the stigma approaching the margin, the fourth vein long, equalling the stigma in length.

THE LITTLE BLACK-MARGINED APHIS (*A. marginella*). Pale yellow, antennæ white, their bases and four bands black; a coal black band in front between the eyes and continued along each side of the thorax to its base; elytra pellucid, stigma, outer margin and rib-vein coal-black, first vein with a black dot on its base; fourth vein slender, black, the other veins colorless; outer margin of the hind wings black. Length 0.15.

In addition to the preceding a remarkably large aphis is described by Dr. Harris, under the name of *A. Caryæ*. A species which forms plaits or folds in the veins of the leaves and which probably pertains to the genus *Pemphigus*, and also a woolly aphis (*Eriosoma*) inhabiting this tree is known to me. These, with the species which forms galls upon the leaf-stalks and twigs, make nine different kinds of these vermin which live at the expense of our hickory and walnut trees.

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like very fine Saxony wool, the crinkled fibers drawing apart as do those of wool. And under them, in each tuft, is discovered by means of the lens, a cluster of the insects alluded to, huddled closely together and fixed to the bark. They are so very minute, and so like the bark in their color, that it was not till after repeated examinations that I was able to detect them. The insect is a louse, so exceedingly small as to be wholly imperceptible to the naked eye, and is discovered with difficulty even when the eye is aided by a magnifying glass. Of these lice the larger individuals are little over the hundredth part of an inch in length, and smaller ones are associated with them not half this size. They are broad oval and nearly hemispherical in form, soft, of a black or blackish brown color, with their backs coated over more or less with a whitish meal-like powder. Three pairs of legs are perceptible, which are equidistant from each other. They are short, filiform and black. Little more than what has now been stated can be discerned with a common magnifying glass. When placed upon white paper, the dark color of the insect renders it very perceptible, and a very slight motion may be seen, but for which, one would deem it a speck of shapeless inorganic matter. Its powers of locomotion are so small that it does not attempt to crawl away from the point where it is placed, a slight gliding motion, to the distance of little more than a hair's breadth, being all that it commonly accomplishes.

When highly magnified, the white meal-like substance upon the back of this insect is found to be a mass of short curling uneven filaments, coating the back and giving it a rough, shaggy appearance. The legs are short and robust, the shanks being nearly equal to the thighs in diameter, and the feet but little narrower at base than the shanks; they are conical, and seem to be of one single piece, ending at tip in two minute short bristle-like setæ. The shanks are but little longer than broad and slightly enlarged towards their tips. The thighs are slightly longer than the shanks and thickest in their middle. There are no thread-like or other projections at the hind end. The head appears to be separated from the body by a very faint transverse line. In the meal-like powder with which it is coated, no antennæ or organs to the mouth can be discerned, but on carefully rubbing off this powder two little projecting conical points, one upon each side of the head, standing outwards like little ears, appear to represent the antennæ. Often the white powder upon the back appears like transverse bands, separated from each other by the slightly constricted black sutures of the body. The flat under side of the body is of a pale color, and in some individuals the upper side is also tinged with pallid.

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INFESTING GARDEN VEGETABLES.

THE CABBAGE.

AFFECTING THE LEAVES.

Eating holes in the outer leaves late in autumn; a small cylindrical pale green worm, wriggling briskly when disturbed, and letting itself down by a thread.

The CABBAGE MOTH. *Cerostoma Brassicella.*

One of the most important culinary vegetables which we cultivate, the cabbage, is in Europe subject to the attacks of quite a number of caterpillars and moths, some of which prey voraciously upon it. In our own country this vegetable probably has as many of these enemies as abroad; but so little attention has been bestowed upon our noxious insects, that only two of these have as yet been publicly noticed—the cut worm, which is everywhere such a grievous pest, and the caterpillar of our white butterfly, which, however, subsisting upon mustard, turnip, and most other plants of the extensive order *Cruciferæ*, seldom invades cabbages in such numbers as to injure them. But I come to speak of another worm, a moth, which makes greater havoc upon the leaves of the cabbage than any insect which has yet been noticed at home or abroad. And although it has not yet been observed within the confines of our own State I entertain no doubt that it exists here, and that it will at times become multiplied in particular localities, to the same extent that it has been in one of our sister States the past season.

In the neighborhood of Ottawa, Illinois, in October last, I observed the cabbage leaves in the gardens perforated with numerous holes of variable size and irregular form, by a small green worm. Some gardens were so much infested that all the outer

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disturbed, with a wriggling motion it runs briskly backwards, or by a fine cob-web like thread lets itself down from the leaf. Its castings are little black grains, which appear like gunpowder sprinkled thickly over the leaves and the ground beneath them. The pupa or chrysalis is enveloped in a very pretty gauze-like

cocoon, which may be found attached to the e ten leaves, two or more of them frequently in a cluster together. It is spun of clean white threads, crossing each other and forming an open net-work, through the meshes of which the inclosed chrysalis may be distinctly seen. The threads composing the net-work are coarsish and not very stout. They may readily be broken with the point of a needle, and the inclosed pupa be thus removed from its case for examination, though the cocoon is so slightly attached to the leaf that it is frequently torn loose in thus breaking it open.

Interspersed with these gauze-like cocoons upon the leaves, others may be met with quite different in their appearance, being opake and of a thick paper-like texture and a brown color. They are of an eliptic form, rounded at both ends, and only about the tenth of an inch long and a third as broad. These have been constructed by the larvæ of parasitic Ichneumon-flies which have destroyed the worms of the cabbage moth. And from the information I possess, it appears that this parasite deposits but a single egg in each worm, from which a maggot hatches, which feeds internally upon the worm, yet without attacking any vital part whereby the worm would be prematurely destroyed. Thus the parasite, as in other cases of this kind, attains its growth at the same time that the worm reaches maturity, when the maggot finishes its work by destroying the little that remains of its foster parent, and immediately incloses itself in this paper-like cocoon. Of three mature worms which I inclosed in a small box over night, only two were found the next morning. All vestiges of the third had disappeared, and in place of it was one of these paper-like cocoons.

But as the worm of the Cabbage moth is such a choleric, mercurial little fellow that when he is molested, be it ever so slightly,

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he darts backwards and wriggles about so suddenly and sp
it will be an interesting topic for some future observer t
by what artifice his mortal fo e induces him to remain qu
able to cling to him long enough to puncture and drop
within his skin. The knowledge and skill which these Ich
and other parasitic Hymenopters often show in their pro
is truly wonderful. Every person will recollect the larv
Isabella tiger-moth (*Arctia Isabella*)—the large caterpill
stiff even-shorn hairs of a tan color and black at each en
body, which crawls about our yards and often enters our
ings—and will probably have observed the fact that i
crawling he is rudely touched he suddenly stops and doub
self together for a moment, and then straightens himsel
and resumes his journey. The long stiff hairs with whic
protected much like a porcupine, we should think would
it impossible for an insect enemy to place an egg anywher
his skin. Mr. P. Reid tells me he once saw one of thes
pillars crawling with a hurried eager step across a dust
with an Ichneumon fly pursuing him, striving to cling up
back, but falling off in consequence of the rapid motion
caterpillar. The fly finding itself frustrated in its every
next, as if humming to itself the refrain "'Twill never do
it up so," flew a few feet forward of the caterpillar, and t
darted back with all its energy, hitting the caterpillar squ
his face. The caterpillar thus roughly assailed suddenly s
and bent himself together in his accustomed manner, anc
instant the fly, alighting upon his back, appeared to fix an
the margin of one of the breathing pores, which had becom
exposed by the caterpillar doubling his body thus together
moment the caterpillar was recovered from his shock a
crawling rapidly forward again, when the fly struck him a
time in the same way, and thus he was stopped and had
deposited upon his side three times, before he reached t
grass beside the highway, in which he was secure from
molestation. And it is probable that by some artifice
curious and remarkable, the parasite of the Cabbage moth
to drop an egg into the skin of his irritable, brisk m
victim.

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This moth pertains to the genus *Cerostoma* of Latreille and the British entomologists, a genus belonging to the family TINEIDÆ, and intimately related to that to which the Palmer worm pertains—both genera having the feelers with a tuft of scales projecting forward like a beak, from the middle of which beak the slender terminal joint stands upwards like a little horn. The larvæ of the two genera are also identical in their appearance and habits. The genus *Cerostoma* is described as differing from that of *Chætochilus* in having the wings narrower and rounded at their ends, differences which are so slight as to be scarcely discernable on a comparison of this species with the moth of the Palmer worm. The antennæ, moreover, are directed forward instead of being turned backwards and lying upon the back; but this is a character which is liable to be deceptive except when observed in the living specimen. The light color of the inner margin of the wings, however, and the lace-like cocoon of the pupa, leave no doubt that it is the genus *Cerostoma* to which our insect must be referred. Stephens (Illustrations, Haustellata, vol. iv. p. 341) says the spiral tongue in this genus is "shortish," whilst Westwood (Humphrey's British Moths, vol. ii. p. 245) gives it as "long and slender." The latter is certainly its character in our insect, where it is about equal to the antennæ in length. Our species is closely allied to the *C. porrectella*, Lin., the worm of which Mr. Westwood found feeding upon buds of the White Rocket, a plant of the same family with the cabbage, and which forms an open-net work cocoon the same as our species.

The WORM of the Cabbage moth is nearly cylindrical in its form, rather thickest in the middle, and slightly tapering towards each end. It is over a quarter of an inch long, measuring when full grown 0.35, and is the thickness of a coarse knitting needle. It is variable in its color, but is most commonly pale green, of the same hue as the cabbage leaf. Some are of a deeper tinge and others paler, varying to greenish yellow or pale yellow. Often the hind part of the body is paler than the fore part. Frequently the head or the apical segment or both are pale yellow, the rest of the body being of the usual green hue. Individuals may sometimes be met with

having the head dusky or black with dusky clouds. The neck is frequently tinged with red. Commonly a stripe along the middle of the back is more or less distinct, of a deeper green color, or blackish in places; and on each side of the back a similar stripe may be discerned, whilst low down on each side a whitish stripe is sometimes apparent. With a magnifying glass the body is perceived to be clothed with several short black hairs which proceed from minute

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AFFECTING THE FRUIT.

The young fruit becoming red and putrid, containing within it one or more small bright yellow maggots.

The Gooseberry Midge.—*Cecidomyia Grossularia.*

It is common to find upon the gooseberry bushes in our gardens some of the young fruit of a prematurely ripe appearance, turning red and dropping to the ground. Some years much of the fruit is lost in this way. This premature ripening of the gooseberry is caused by insects puncturing and depositing their eggs in it. We have at least two insects which thus attack the gooseberry. One of these appears to be a species of moth which I have not yet obtained in its perfect state. The other is the larva of a midge or a small two-winged fly, of the genus *Cecidomyia* and family Tipulidæ. On examining some of these affected gooseberries early in July, their pulp was found to be putrid and infested with small maggots of a bright yellow color and oval form, their bodies divided into segments by five impressed transverse lines, and their whole appearance being closely like the larvæ of the Wheat midge, found in the ears of wheat. These completed their transformations and gave out the winged flies the latter part of the month of July. In size, number of joints to the antennæ, etc., these correspond with the *C. Ribesii* of Europe, but that is described by Macquart (Dipteres, vol. i. p. 162,) as having black bands upon the thorax, the abdomen blackish, &c. Hence it is evidently a much darker colored species.

The Gooseberry Midge is scarcely the tenth of an inch in length to the tips of the closed wings. It is of a pale yellow color, the thorax paler than the abdomen and of a wax-yellow hue; eyes black; antennæ blackish, of twelve joints, separated by hyaline pedicels one third as long as the joints, which are short-cylindrical with rounded ends, their length scarcely more than double their breadth; legs straw yellow faintly tinged with dusky towards their tips; wings hyaline faintly tinged with dusky.

It is probable that those flies which come out the latter part of July deposit a second crop of eggs in the gooseberries, or else resort to some other fruit of a similar nature, and that the larvæ which come from these eggs lie in the ground during the winter; for we do not perceive how, otherwise, there can be flies in June to deposit their eggs in the young fruit.

All fruit upon the gooseberry bushes which is found prematurely decaying and assuming a ripened appearance, and all which falls to the ground, should be gathered and thrown into the fire, to destroy the worms which the berries contain. By attention to this measure the haunts of this insect in the garden can be easily broken up, whereas, if this step is neglected the evil will be liable to continue year after year. As this insect breeds equally well in the wild gooseberries, we cannot hope to exterminate it from our country. But none of these wild gooseberries should be permitted to grow in the vicinity of the garden, for from them, if near, this midge will continually be finding its way to the bushes of the cultivated gooseberry.

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Expenses of erections and expenses of the fair at New-York,	9,152 03	
Paid on entomological survey,	400 00	
Interest on temporary loan,	25 40	
Glassware for floral hall,	8 58	
Paid treasurer advances,	250 00	
		19,982 35
		$2,563 78
Medals on hand,		175 00
Premium books on hand,		165 00
		$2,903 78

We certify that we have carefully examined and compared the above account with the vouchers accompanying the same, and that the same is in all respects just and true.

WILLIAM KELLY,
Pres't N. Y. Agric'l Soc'y.
R. P. JOHNSON,
Corresponding Secretary.

Feb. 13, 1855.

(A.)—EXPENSES OF WINTER MEETING.

No. 1.	Lumber for yards and pens,	$119 18
2.	Nails, locks & other materials,	15 99
3.	Carpenter's work, teaming and night watch,	129 16
4 to 13.	Clerks and Police,	86 50
		$350 83

(B.)—INCIDENTAL AND MISCELLANEOUS EXPENSES.

No. 1.	Treasurer for his services, 1853,	$171 00
9.	Express charges, books from London,	14 69
10.	Survey of Essex county,	100 00
13.	Expenses at fair, N. Y.,	83 94
15.	Essay on Indian corn,	20 00

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No. 16.	Insurance on library and museum,	$11
17, 26.	Making badges and ribbons,	24
18.	Treasurer for services, 1854,	200
20 to 24.	Expenses removing library and museum and refitting,	30
27.	Printing labels for entomological specimens,	3
2 to 12, 14, 19, 25.	Incidental expenses, rooms,	68
		$727

(C.)—PRINTING AND ADVERTISING.

No. 1.	Printing circulars,	$8
2 to 5, 10 to 13, 16, 18.	Advertising,	97
6, 7.	Stationery, printing and engraving, R. H. Pease,	139
8.	Stationery, E. H. Pease,	16
9.	Printing and stationery, F. & Little,	25
14.	Printing Journal, blanks, &c., C. V. Benthuysen,	270
15.	Printing addresses, &c.,	48
		$604

(D.)—MUSEUM EXPENSES.

No. 1.	Gladding, work on cases and frames,	$19
2.	Williams & Co. repairing clock,	2
3.	Boardman & Son, carpenter work,	5
4.	Printing labels, &c.,	6
		33

(E.)—Postages, vouchers, 1 to 10,		$132

(F.)—LIBRARY.

No. 1.	Books for library,	$6
2.	do do	3
3.	Gardener's Chronicle and Farmer's Companion,	17
4.	Binding books,	2
5.	Binding & labels,	30
6.	Books for library, &c.,	23
		$81

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(G.)—SALARIES.

Vouchers.		
1 to 13.	Secretary's salary,	$2,000 00
1 to 12.	Assistant's services and traveling expenses,	363 74
		$2,363 74

(H.)—PREMIUMS AND EXPENSES PAID ON ACCOUNT OF FAIR AT SARATOGA, &c.

Vouchers.		
1.	Geo. Vail, premium bull,	$15 00
2.	Mrs. C. O. Newton, needlework,	3 00
3.	Mrs. S. O. Cook, do	2 00
4.	Moses Eames, prem. on butter,	15 00
5.	D. B. Westfall, plowing match,	6 00
6.	Michael Leyden, jr., colt,	15 00
7.	Miss Emily J. Clark, domestic goods,	12 00
8.	James T. Van Namee, domestic goods and flowers,	31 00
9.	Miss Henrietta Daniels, butter,	3 00
10.	Z. M. Saunders, parsley,	3 00
11.	T. C. Maxwell & Brother, fruit,	3 00
12.	Miss Bacon, needlework,	3 00
13.	Geo. H. Cherry & Co., fruit,	12 00
14.	Wm. M. Bullock, bull calf,	5 00
15.	S. Fansworth, poultry,	2 00
16.	D. T. Vail, fruit,	13 00
17.	Lawrence O. Kennedy, plowing,	8 00
18.	Geo. Waterman, engraving prem., expenses,	52 38
19.	E. H. Pease, printing,	46 00
20.	Fisk & Little, prem., expenses,	66 82
21.	Miss E. D. Palmer, flowers,	3 00
22.	Josiah Barber, matched horses,	15 00
23.	John E. Morgan, prem. harrow,	6 00
24.	Mrs. Betsey Reynolds Voorhees, domestic goods,	3 00
25.	John Garrison, steers,	5 00
26.	Gen. J. T. Blanchard, superintendent,	18 00
26½.	J. M. Andrews, melons,	4 00
27.	Wm. Frothingham, hats,	2 00

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30.	George Clarke, cheese,	$5 00
31.	David Hess, grain and seed,	11 00
32.	Levi Shaw, do	16 00
33.	John Winslow, cheese,	15 00
34.	James W. Jolly, grain and field crops,	25 00
35.	L. L. French, grain, butter,	10 00
36.	Nathan Brownell, sheep and dressed meats,	26 00
37.	Chas. W. Eells, spring wheat,	23 00
38.	George K. Eells, corn,	20 00
39.	O. Howland, grain and seeds,	66 00
40.	Geo. B. Powell, butter,	10 00
43.	D. A. Bulkley, cattle and seeds,	15 00
44.	N. Culver, potato experiment,	25 00
45.	Volney Burgess, do	75 00
		$1,042 00

(J.)—PREMIUMS PAID ON ACCOUNT OF FAIR HELD IN NEW-YORK, OCTOBER 6TH, 1854.

Vouchers.

1.	T. G. Twitchell, single mare,	$10 00
2.	A. Nye, potatoes,	2 00
3.	John Johnson, rabbits,	2 00
4.	Wm. H. Van Cott, fat cow,	6 00
5.	Joseph Caskey, vegetables,	5 00
6.	William Moore, geese,	4 00
7.	H A. Graef, floral ornament,	10 00
8.	Geo. W. Thatcher, Ayrshire bull and flowers,	30 00
9.	Wm. Watson, cattle,	40 00
10.	E. S, Dewey, matched horses,	15 00
11.	J. C. Rich, corn stalk cutter,	3 00
12.	Oliver Slate, jr , cattle,	20 00
13.	Edward Wait, sheep and swine,	10 00
14.	Wm. Armstrong, mares,	10 00
15.	G. W. Cummings, poultry,	14 00
16.	Francis Fiertner, swine,	8 00
17.	Mrs. Lewis Frank, Turkish embroidery,	6 00
18.	Robert D. Weeks, potatoes,	3 00

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19. E. W. Phelps, beehives, ... $5
20. James Curtis, honey, ... 3
21. R. R. Morris, cattle, &c., ... 115
22. C. S. Wainwright, cattle, ... 83
23. G. H. Lovett, medals, ... 255
24. P. T. Barnum, swine, ... 20
25. A. M. Clarke, cattle, ... 5
26. Mrs. Jones, millinery, ... 4
27. M'de Demerest, patterns, ... 2
28. Mrs. E. Richmond, needlework, ... 1
29. Reed Burritt, sheep, ... 25
30. Maher & Co., implements, ... 100
31. B. &. C. S. Haines, cattle, ... 30
32. H. S. Ballou, poultry, ... 3
33. H. S. Freeman, poultry, ... 13
34. Edward T. Boler, colt, ... 15
35. Edward Cooper, native cow, ... 15
36. E. W. Bull, grapes, ... 2
37. A. Stevens, heifer, ... 5
38. D. Grinton, potatoes, ... 2
39. Wm. Simpson, poultry, ... 4
40. Geo. Anderson, poultry, ... 9
41. S. B. Dodge, manure fork, ... 2
42. R. L. Allen, implements, ... 73
43. Wm. A. Mills, Ayrshire bull, ... 15
44. N. Crittenden, apples, ... 13
45. R. Murray, horse, ... 10
46. Oscar Gregg, buck, ... 5
47. M. Donadi, flowers, ... 17
48. Isaac E. Haviland, horses, ... 15
49. John Butterfield, horses, ... 13
50. James L. Jackson, mules, ... 20
51. Thomas Gould, cattle, ... 30
52. Enoch Ottley, rag carpet, ... 6
53. Enoch Ottley, cattle, ... 15
54. Isaac Shimer, bull, ... 15
55. C. T. Smith, seed corn, ... 3

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56. Norton S. Collins, quilt, ... $3 00
57. C. B. Hutchinson, cob crusher, ... 5 00
58. F. Briell, vegetables, ... 7 00
59. Wm. Anderson, harrow, ... 5 00
60. S. Love, swine, ... 33 00
61. J. W. Wood, cut flowers, ... 3 00
62. E. Archer, French pumpkin, ... 1 00
63. Ellwanger & Barry, fruit, ... 40 00
64. A. Frost & Co., fruit, ... 18 00
65. Hallock & Sherman, buck, ... 8 00
66. H. Johnson, poultry, ... 48 00
67. Patrick Weir, cow, ... 25 00
68. Wheeler Hale, swine, ... 5 00
69. W & J. Park, boquet, ... 4 00
70. P. M. Fonda, hairwork, ... 3 00
71. E. Gazley, Cattle and sheep, ... 28 00
72. Hamilton Morrison, potatoes, ... 8 00
73. Geo. W. Coffin, cattle, ... 30 00
74. James Potter, grapes, ... 13 00
75. Asa Johnson, beehive, ... 3 00
76. Mrs. Johnson, bedspread, ... 2 00
77. John Oliver, bull, ... 15 00
78. Cornelius D. Vreeland, horse, ... 15 00
79. Henry Eddy, honey, ... 5 00
80. D. B. Westfall, plowing, ... 6 00
81. Elon Sheldon, cattle, ... 59 00
82. D. C. Cummings, cattle, ... 5 00
83. John Brown, cattle, ... 40 00
84. Adam A. Haysradt, cattle, ... 20 00
85. Walter Wakeman, sheep, ... 41 00
86. William Sheldon, sheep, ... 10 00
87. L. S. Pennington, fruit, ... 10 00
88. F. B. Halsey, horse, ... 15 00
89. T. T. Jackson, horses 43 00
90. Clarke & Jaralman, horses, ... 15 00
91. J. C. & L. W. Rathbun, sheep, ... 29 00
92. John T. Andrews, sheep 5 00

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93. Wm. P. Ottley, grain and seed, ...
94. Wm. Love, swine,. .....
95. Wm. Isley, swine, ...
96. Wm. Isley, vegetables,.....
97. Otis Ormsbee, mare,.....
98. Thos. Cutting, swine,.....
99. John T. Waldorph, horse,..... .....
100. N. J. Le Doit, fanning mill, ...
101. George W. Wilson, boar,.....
102. James Weir, flowers and tomatoes,.....
103. L. T. Marshall, linen cloth, ...
104. W. E. Haxton, poultry, ...
105. Lewis Livingston, poultry, ...
106. James Halleck, vegetables,.. .....
107. Thos. Paxson, butter,.....
108. Q. Kipp & Son, horse cart, ...
109. Isaac Crispell, horse and seeds,.....
110. Newell French, plowing,.....
111. Chas. P. James, Pea fowls, ...
112. L. R. Proctor, horse, ...
113. S. T. Taber, heifer,.....
114. Daniel B. Haight, swine and sheep,.....
115. I. N. De Forest, sheep and bull, ...
116. J. C. Haight, buck,..... .... ..
117. Watson Havens, artificial flowers,.....
118. S. R. Bowne, horses,.....
119. Lewis D. Brown, ducks, ...
120. Edward G. Faile, cattle, poultry, &c.,.....
121. Michael McClappey, colt, ...
122. Kate Crocker, domestic goods, ...
123. J. M. Sherwood, cattle, ...
124. N. J. Becar, cattle and sheep,..... 1
125. Hungerford & Brodie, cattle, ... 1
126. Lewis G. Morris, cattle, sheep, and swine,..... 3
127. E. P. Prentice, cattle, ...
128. C. Van Benthuysen, premium expenses in printing
129. For printing diplomas,.....

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130.	B. P. Johnson, premium books,	$95 00
131.	John Williams, gelding,	10 00
132.	Samuel C. Curtis, cattle and sheep,	15 00
133.	Elisha Dorr, fruit,	15 00
132½.	L. S. Pennington, apples,	15 00
133½.	Cowing & Co., pump,	5 00
134.	Roswell L. Colt, cattle,	30 00
135.	Appleton and Anderson, drain tile,	5 00
136.	T. M. Rodman, pigeons,	3 00
137.	John C. Beekman, vegetables,	10 00
138.	John White, spading,	1 50
139.	G. Schlegal, bonnets,	2 00
140.	Samuel Munn, flowers,	6 00
141.	Miss M. S. Rice, butter,	6 00
142.	Louise M. Harrell, drawings,	3 00
143.	William Hunter, fruit tubs,	3 00
144.	B. A. Hall, butter,	15 00
145.	Reuben Smith, horse,	8 00
146.	Mrs B. R. Voorhees, needle work,	4 00
147.	Wm. Chamberlain, cattle and sheep,	60 00
148.	Wm. D. Steward, bull,	10 00
149.	E. H. Kimball, buck,	3 00
150.	N. Crittenden, quinces,	3 00
151.	Theodore Fowler, M D., grapes,	5 00
152.	John Hewit, flowers,	15 00
153.	John A. Smith, heifer,	5 00
154.	H. Purdy, plowing,	4 00
155.	S. & M. Peckham, cultivator,	5 00
156.	John Dingwall, flowers,	5 00
157.	Chas. E. Wheeler, peppers,	3 00
158.	Sophia A. Ottley, butter,	5 00
159.	Horace Greeley, corn and vegetables,	4 00
160.	E. Sherman, butter and grain,	21 00
161.	E. S. Hillier, dress cap,	2 00
162.	William Landon, horse,	8 00
163	Sarah Shove, wax flowers,	2 00
164.	Thos. W. Ludlow, jr., fruit,	13 00

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165. Daniel Norton, spading,.....
166. Deering & Dickson, implements,.....
167. E. G. Cook, sheep,.....
168. Z. M. Saunders, vegetables,.....
169. Lewis Morris, blood mare, ...
170. Daniel McCauley, jennet,.....
171. O. Howland, cattle, sheep, and grain,.....
172 Hecker & Brother, flour,.....
173. C. S. Wainwright, cattle and swine, ...
174. Mrs. Jas. T. Van Namee, domestic manufactures and flowers, ...
175. Emily J. Clarke, butter, ...
176. Wm. Newcomb, flowers, ...
177. Joseph Haswell, sheep, ...
178. Geo. Hartshorn, sheep,.....
179. I. & G. Williams, cheese, ...
180. John W. Bailey, apples, ...
181. Geo. Campbell, sheep,.....
182 J. R. Noble, colt, ...
183. L. Spencer, cattle, ...
184. James Bathgate, cattle, ...
185. John Base, spading, ...
186. C G. Sisson, horse,.....
187. Sherman Griswold, swine,.....
188. Premium plate, ...

$1,

(K.)—EXPENSES OF THE ERECTIONS AND OF THE STATE FA NEW YORK, 1854.

Vouchers.

1. Collecting New-York subscriptions,..... $
2. Enclosing grounds and erecting buildings, stalls, &c., ... 3
3. Hay, straw, grain, &c., for stock,..... 1
4. Plumber's bill, introducing water to grounds,...
5. Crockery bill for Floral Hall,.....

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6. Refreshments for judges, superintendents, clerks, and officers, upwards of 500 in number,.....	$600 00
7, 8, 102. Advertising previous to fair, N. Y., ...	183 75
9. Printing circulars,.....	9 00
10. Carpenters' work, fitting up interior buildings, tents, &c., ...	838 00
11. Use of tents, putting up and attendance,.....	470 05
12. Evergreens for Floral Hall,.....	45 00
13. Posting bills,.....	10 00
15. Ice for halls, ...	3 00
56. Assistant night watch in buildings,.....	40 00
79. Flags, ...	39 78
80. Refreshments for police,.....	109 00
88. Cartage,.....	2 37
89. C. & Stetson,.....	58 88
91. Livery bill,.....	24 00
Clerks in business office, vouchers 51, 52, 54, 57, 59, 63, 65, 69, 70, 71, 78, 82, 83, 84, 85, 90, 99, 104,...	386 26
Clerks in treasurer's office, vouchers 16, 17, 18, 24, 25, 26, 27, 28, 30, 31, 32, 34, 35, 41, 42, 43, 44, 45, 48, 49, 50, 92,.....	311 63
Clerks in buildings and with judges, vouchers 14, 55, 58, 61, 62, 66, 67, 68, 72, 73, 74, 75, 76, 86, 87, 93, 95, 100,.....	314 35
Superintendents and assistants, vouchers 53, 60, 64, 77, 91, 98, 101, 103, ...	277 68
Gate tenders, &c., vouchers 19, 20, 21, 22, 23, 29, 33, 36, 37, 38, 39, 40, 46, 47, 84, 94,.....	138 00
	$9,152 03

(S.)

Paid on Entomological Survey,.....	$400 00	
Interest on temporary loans,.....	25 40	
Glass ware for Floral Hall,.....	8 58	
Treasurer's advances paid,.....	250 00	
		$683 98

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NEW-YORK STATE AGRICULTURAL SOCIETY.

AWARD OF PREMIUMS

AT THE FOURTEENTH ANNUAL EXHIBITION, HELD AT HAMILTON SQ IN THE CITY OF NEW-YORK, OCTOBER, 1854.

CATTLE.

SHORT HORNS—IMPORTED.

BULLS.

Morris & Becar, New-York, bull "Balco," 1st prem.,.....

Hungerford & Brodie, Adams, Jefferson co., 1 year old bull "St. Nicholas," 1st prem., ...

Bull calf.

Lewis G. Morris, Fordham, "Brawith," 1st prem.,.....

COWS.

Lewis G. Morris, Fordham, "Bloom," 1st prem.,.....

Heifer, 2 years old.

Noel J. Becar, Smithtown, L. I., "Beauty," 1st prem.,. ....

Heifer, 1 year old.

Hungerford & Brodie, Adams, Jefferson co , "Lady Newham,' 1st prem.,..... .....

COMMENDED.

L. G. Morris, cow "Songstress."

O. Slate, Jr., cow "Jean," as very fine animals.

N. J. Becar's 1 year old heifer "Miss Belleville," as an ex dinary fine animal.

SHORT HORNS—AMERICAN BRED.

(Report—ante p. 31.)

BULLS.

Thomas Gould, Aurora, Cayuga co., "Prince Royal," 1st pren

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2d prem., ... $15

James Merriman, Oriskany, Oneida co., "Sir Arthur," 3d prem. 5

Two years old.

John M. Sherwood, Auburn, N. Y., "La Fayette," 1st prem., 20

Thomas Richardson, West Farms, Westchester co., "Henry Clay," 2d prem., ... 10

One year old.

L. G. Morris, Fordham, Westchester co., "Oxonian," 1st prem , 15

James Bathgate, Fordham, Westchester co., "Majesty," 2d prem., ... 10

Oliver Slate, Jr., Throg's Neck, Westchester co., "Sir Robert Peel," 3d prem., ... 5

Bull calf.

L. G. Morris, Fordham, Westchester co., "Lucius," 1st prem., 5

John M. Sherwood, Auburn, N. Y., "Red Jacket," 2d prem., Trans. and..... 3

COWS.

L. Spencer, Williamsbridge, "Phebe 7th," 1st prem., ... 25

L. G. Morris, Fordham, N. Y., "Catharine Hays," 2d prem. 15

Oliver Slate, Jr., Throg's Neck, N. Y., "Moss Rose," 3d prem., 5

Heifers, 2 years old.

N. J. Becar, Smithtown, L. I., "Maid of Oxford," 1st prem., 20

N. J. Becar, "Lady Elgin," 2d prem., ... 10

N. J. Becar, "Suffolk Maid," 3d prem., ... 5

One year old.

S. T. Taber, Chestnut Ridge, Dutchess co., "Althea," 1st prem., 15

N. J. Becar, Smithtown, L. I., "Camelia," 2d prem., ... 10

L. Spencer, Williamsbridge, "Phebe 8th," 3d prem., ... 5

Heifer calves.

L. G. Morris, Fordham, Westchester co., "Oxford," 1st prem., 5

J. M. Sherwood, Auburn, N. Y., "Princess 7th," 2d prem., Trans. and..... 3

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L. Spencer's cow, "Estherville 2d," which has heretofore the first premium of the Society, is a cow of very cellence.

Two of the Short-horn cows exhibited by William Kelly, of the Society, are entitled to special commendation.

Mr. O. Slate, Jr., Throg's Neck, Short-horn cow, and a old heifer of Mr. G. W. Ostrander, Hoosick, Rensselae also worthy of special notice, and a heifer of L. "Peony 3d."

The committee remark, that the show of Short-horn co cidedly in advance of any previous show, and they ca highly commend the enterprise and liberality which has our State with the best animals, of the best breeds of countries. Our difficulty has been great in selecting the entitled to take precedence. We have given our best jud and must ask indulgence for any mistakes. There were superior animals that we regret we had not more prem bestow.

DEVONS—IMPORTED.

BULLS.

L. G. Morris, Fordham, Westchester co., "Frank Quartl 1st prem., ...

One year old.

W. P. & C. S. Wainwright, Rhinebeck, Dutchess co., "M sasoit," 1st prem., ...

COWS.

L. G. Morris, Fordham, Westchester co., "Birthday," prem., ...

Heifer, 1 year old.

L. G. Morris, "Birthday 2d," 1st prem., ...

DEVONS—AMERICAN BRED.

BULLS.

John Oliver, Sterling, Cayuga county, "Rover," 2d pr

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J. N. Deforest, Dover, Dutchess county, "Winchester," 1st prem., ... $20

W. D. Steward, Chatham Four Corners, "Empire," 2d prem., 10

Thomas Gould, Aurora, "Holkham," 3d prem., ... 5

One year old.

Isaac Shimer, Phelps, Ontario county, "Washington," 1st prem., ... 15

Enoch Ottley, Phelps, Ontario county, "Champion," 2d prem., ... 10

W. P. & C. S. Wainwright, Rhinebeck, Dutchess county, "Pocahontas," 3d prem., ... 5

Bull Calves.

Edward G. Faile, West Farms, Westchester co., "Tecumseh," 1st prem., ... 5

L. G. Morris, Fordham, Westchester county, "Puritan," 2d prem., ...Vol. Trans. and 3

This class was very superior, the number of animals large, and generally of a high order. The two years old especially deserve commendation; and while there are none inferior, they deem No. 66, "Winchester," as excelling any bull of the breed that has come under the notice of the judges; and recommend a diploma, in addition to award.

DEVON COWS.

W. P. & C. S. Wainwright, Rhinebeck, Dutchess county, "Helena," 1st prem., ... $25

L. G. Morris, Fordham, Westchester county, "Fuchsia," 2d prem., ... 15

W. P. & C. S. Wainwright, Rhinebeck, Dutchess county, "Editha," 3d prem., ... 5

Heifers, two years old.

W. P. & C. S. Wainwright, Rhinebeck, Dutchess county, "Nora," 1st prem., ... 20

Edward G. Faile, West Farms, Westchester county, "Amy," 2d prem., ... 10

Ambrose Stevens, Batavia, Genesee county, "Lovely 3d," 3d prem., ... 5

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One year old.

E. G. Faile, West Farms, Westchester county, "Fancy," 1
prem., ...

W. P. & C. S. Wainwright, Rhinebeck, Dutchess count
"Donna," 2d prem., ...

Enoch Ottley, Phelps, Ontario county, "Heroine," 3d prem

Heifer calves.

W. P. & C. S. Wainwright, Rhinebeck, Dutchess county
"Linda," 1st prem., ...

L. G. Morris, Fordham, Westchester county, "Birthday 3d,
2d prem., ...Trans. an

This class was very superior, and does great credit to tl
ciety and the State. The committee, in awarding the prem
were unanimous in every instance.

HEREFORDS—AMERICAN BRED.

BULLS.

William Chamberlain, Red-Hook, Dutchess county, 2d prem.,

COWS.

William Chamberlain, Red-Hook, Dutchess county, 1st prem.,

In this class only three animals were entered, and it is n
to be regretted that owners of this breed of animals in the
should have neglected to present them at this exhibition.

AYRSHIRES—IMPORTED.

BULLS.

Hungerford & Brodie, Adams, Jefferson county, N. Y., "Kil-
burne," 1st prem., ...

COWS.

William Watson, Westchester, "Beith," 1st prem., ...

Heifer, two years old.

Hungerford & Brodie, Adams, Jefferson county, "Whit
Lilly," 1st prem., ...

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Hungerford & Brodie, "Lady Ayr," 1st prem., ... $15

COMMENDED.

Hungerford & Brodie, "Mary Grey," cow 3 years old.
Hungerford & Brodie, "Kate," cow 3 years old.
William Watson, Westchester, "Maria," and "Anna," heifers, 2 years old.
William Watson, "Eliza," 1 year old.
Hungerford & Brodie, Adams, Jefferson county, "Cherry Blossom," 1 year old.

AYRSHIRES—AMERICAN BRED.

BULLS.

George W. Thatcher, Sunny-Side Place, Westchester county, "Pelham," 1st prem., ... $25
William A. Mills, Mt. Morris, Liv. co., "Dairyman," 2d prem., ... 15

Two years old.

E. P. Prentice, Albany, "Dundee 5th," 1st prem., ... 20

One year old.

George W. Coffin, Amenia, Dutchess county, "Malcom," 1st prem., ... 15

Bull calf.

William Watson, Westchester, Westchester county, "Robin," 1st prem, ... 5

COWS.

Patrick Weir, Yorkville, New-York, "Kate," 1st prem., ... 25
E. P. Prentice, Albany, "Jenny Dean," 2d prem., ... 15
A. F. Van Cortlandt, Westchester, "Lady Cassy," 3d prem., 5

Heifers, one year old.

George W. Coffin, Amenia, Dutchess county, "Flora," 1st premium, ... 15
S. A. Curtis, Canaan, Columbia county, "Young Alida," 2d premium, ... 10
E. P. Prentice, Albany, "Minne 3d," 3d premium, ... 5

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encourage the qualities which contribute so largely to the value of this useful animal, endeavoring at the same time to combine those qualities which your committee feel are indispensible for beef and work; being satisfied that a larger number of these qualities can be combined in the crossing of different breeds than in any one of the different kinds of thorough breds; your committee being well satisfied that to obtain the greatest combination of qualities would be fully accomplished in the first cross with a thoroughbred sire. When crossed a second time, will be with great uncertainty, and more than probably prove an unprofitable animal to the breeder.

Your committee were strongly impressed with this fact in the different varieties which were offered for premiums.

NATIVE CATTLE.

COWS.

Robert R. Morris, Westchester, N. Y., 1st premium,..... $25
Edward Cooper, Westchester, N. Y., 2d premium,..... 15
Morris & Baity, West Farms, Westchester county, 3d prem., 5

Heifers, two years old

Obadiah Howland, Owasco, Cayuga county, 1st premium,... 20
Robert R. Morris, Westchester, N. Y., 2d premium,..... 10
H. Howland, Owasco, Cayuga county, 3d premium,..... 5

Heifer calf.

Robert R. Morris, Westchester, N. Y., 1st premium,..... 5

WORKING OXEN.

H. and G. Sheldon, Sennett, Cayuga county, ten yoke, 1st premium,..... $25
Adam A. Hoysradt, Kinderhook, single yoke, 1st premium,. 20
E. Gazely, Clinton, Dutchess county, single yoke, 2d prem., 15
A. M. Clark, Fleming, Cayuga county, single yoke, 3d prem., 5

STEERS—*Three years old.*

Mason Salisbury, Ellisburg, Jefferson county, single yoke, 1st premium,..... 10

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J. N. Deforest, Dover, Dutchess county, single yoke, 2d pr mium,.....

STEERS—*Two years old.*

Elon Sheldon, Sennett, Cayuga county, single yoke, 1st prem

STEERS—*One year old.*

Elon Sheldon, Sennett, Cayuga county, single yoke, 1st prem.

MILCH COWS.

Discretionary.

Robert R. Morris, Westchester, N. Y., "Blanche,".....Dipl

No animal was presented with statement and sample of bı as required by the rules of the Society; but the cow "Blan gave evidence of superior milking qualities, and is justly ent to the above commendation.

FAT CATTLE.

OX.

Commended.

J. B. Reed, Pittstown, Rensselaer county; an extraordinary l animal, supposed to weigh about 3,000 pounds, and is wo of special commendation,.....Dipl

COWS.

Oliver Slate, Jr., Throg's Neck, fat cow, a premium of.....

H. H. Van Cott, Victor, Ontario county, fat cow, 2d prem.,.

STEERS.

H. and G. Sheldon, Sennett, Cayuga county, fat steer, a premium of.....

Commended.

B. F. Weeks, 401 Houston street, New-York, ten fat steers, years old,.....Silver m

Daniel Barnes, Washington Drove Yard, New York, fat h four years old,.....Transact

B. Lawrence, No. 41 33d street, New York, fat calf, Transac of American Inst

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FOREIGN CATTLE.

SHORT HORN BULL.

B. & C. S. Haines, Elizabethtown, N. J., "Astoria," 1st prem.,.....Dip. and $15

SHORT HORN COW.

B. & C. S. Haines, "Anna," 1st prem.,.....Dip. and 15

COMMENDED.

B. & C. S. Haines, Short Horn bull, "Vane Tempest 2d," 16 months old,.....Trans.

ALDERNEY.

BULL.

Roswel L. Colt, Paterson, N. J., "Pat. 4th," 1st prem.,..... $15

COW.

Roswel L. Colt, "Lady," 1st prem.,..... 15

COMMENDED.

John T. Norton, Farmington, Conn., Alderney bull, "Jersey," .....Trans.
John T. Norton, cow, "Rose,".....Trans.
Same, bull and heifer calf, and two years old heifer,.....Trans.

HORSES.

ALL WORK.

Stallions.

Philip Hornbeck, Accord, Ulster Co., "Thomas Jefferson,".. $25
T. T. Jackson, Flushing, L. I., "Hamiltonian," 2d premium, 15
John J. Waldorph, Claverack, Col. Co., "Nonpareil," 3d pre-prem.,..... 5
H. H. Van Cott, Victor, Ontario county, "Eastern Star," 4th prem.,..... ... .Youatt.

Mares and Foals.

Jackson Nichols, Flushing, L. I., "Bolton Eclipse" and foal, 2d prem., ... 15

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Wm. M. Rysdyke, Chester, Orange county, "Plato," 1st prem., ... $20
Peter Crispel, jr., Hurley, Ulster county, 2d premium, ... 10
Townsend Jackson, Jamestown, Chaut. county, "Confidence," 3d prem., ... 3

Mares.

S. R. Browne, Flushing, L. I., black filley, 1st prem., ... 20
William Armstrong, Westchester county, 2d prem., ... 10

Two years old Stallions.

Timothy T. Jackson, Flushing, L. I., "Iron Duke," 1st prem., ... 15
S. R. Bowne, Flushing, L. I., "Young Clifford," 2d prem., . 10
Jackson Nichols, Flushing, L. I., "Young America," 3d premium, ... Youatt.

Mares.

E. J. Bolin, Westchester, "Kate Hayes," 1st prem., ... $15
Morris & Baity, West Farms, bay filley, 2d prem., ... 10
Samuel Bouton, Brooklyn, sorrel filley, 3d premium, ... Youatt.

One year old Stallion.

Michael McGaffray, 52 Grand street, Williamsburg, L. I., "George Washington," 2d prem., ... 5

Mares.

Lewis G. Morris and Francis Morris, Fordham, "Etiquette," out of "Fashion," 1st prem , ... 10
Henry Booth, Morrissania, "Gentle Kitt," 2d prem., ... 5

MATCHED HORSES.

16 hands and over.

I. E. Haviland, Hempstead Branch, L. I., bays, 1st prem., .. 15
Reuben Murray, jr., Canandaigua, 2d prem, ... 10

COMMENDED.

Adams' Express Co., N. Y., three fine Express team-horses, Dip.

From 15 to 16 hands.

Clark & Jarolaman, Whitestown, Oneida county, bays, 1st prem., ... $15
John Butterfield, Utica, bays, 2d prem., ... 10

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Blood stallions.

James R. Nobles & Co., Bennington, Vt., "Young Hamiltonian," 1st prem., ... $15

All work.

T. T. B. Halsey, West Stockbridge, Mass., "Stockbridge Chief," 1st prem., ... 15

Draught.

Cornelius D. Freeland, Paterson, N. J., "Young Trustee," 1st prem., ... 15

Matched horses, 16 *hands.*

David Sanderson, Somerville, N. J., black horses, 6 and 8 years old, closely matched, 1st prem., ... 15

Above 14 *and under* 16 *hands.*

Charles G. Sisson, Jersey city, bay horses, 6 years old, 1st prem., ... 15

Single mare.

T. G. Twitchell, Boston, Mass., gray mare, 6 years old, 1st prem., ... 10

MULES.

D. McCauley, 207 Third avenue, N. Y., Jennet, 1st prem., .. 25
J. L. Jackson, 315 Stanton street, N. Y., pair dark brown mules, 4 and 5 years old, 1st prem., ... 20

(This pair mules very superior, and believed never to have been equalled in this State.)

COMMENDED.

D. McCauley, N. Y., pair mules, 2 years old, ... Youatt.
Wm. Dyke, Newtown, L. I., team of 8 mules, very closely matched, ... S. S. medal.

Mules out of State.

James Buckalew, Jamesburgh, N. J., pair mules, 1st prem., . 15

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Under 2 years.

Hungerford & Brodie, Adams, Jefferson co., 5 ewes, 1st prem., $10
J. C. & L. W. Rathbun, Springfield, Otsego co., 5 ewes, 2d prem., ... 8
S. A. Curtis, Flat Brook, Columbia co., 5 ewes, 3d prem.,.. 5

Buck lambs.

Hungerford & Brodie, Adams, Jefferson co., 3 buck lambs, 1st prem.,..... 5
Aaron Vail, Stratfordville, Dutchess co., 3 buck lambs, 2d prem., ...Morrell's Shepherd.

Ewe lambs.

Hungerford & Brodie, Adams, Jefferson co., 3 ewe lambs, 1st prem., ... 5
J. C. & L. W. Rathbun, Springfield, Otsego co., 3 ewe lambs, 2d prem.,..... ..... Morrell's Shepherd.

BUCKS—MIDDLE WOOLED—*Two years.*

Lewis G. Morris, Fordham, Westchester co., 1st premium, . 10
Daniel B. Haight, Dover Plains, Dutchess co., 2d premium,. 8
Oscar Gregg, Blooming Grove, Orange county, 3d premium,. 5

Under two years.

Lewis G. Morris, Fordham, Westchester co., 1st premium,.. 10

EWES—*Two years.*

Daniel B. Haight, Dover Plains, Dutchess co., 1st premium,. 10
Lewis G. Morris, Fordham, Westchester co., 2d premium,... 8
Edward Wait, Montgomery, Orange county, 3d premium,... 5

Under two years.

Lewis G. Morris, Fordham, Westchester co , 1st preminm,.. 10
Daniel B. Haight, Dover Plains, Dutchess co., 2d premium,. 8

Buck lambs.

Lewis G, Morris, Fordham, Westchester county, three buck lambs, 1st premium,..... 5
Daniel B. Haight, Dover Plains, 2d prem.,..Morrell's Shepherd.

Ewe lambs.

Daniel B. Haight, ewe lambs, 1st premium,..... $5
Lewis G. Morris, 2d premium,.....Morrell's Shepherd.

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J. Haswell, samples of wool, not less than 5 fleeces,..Vol. of Trans.
Isaac Merritt, Harts Village, fifty samples of wool, 1st premium,.....Silver medal.

CROSS BREED—BUCKS—*Two years.*

Walter Wakeman, Northeast, Dutchess county, 1st premium, $10
Joseph Haswell, Hoosick, Rensselaer county, 2d premium,.. 8
E. G. Cook, Belleville, Jefferson county, 3d premium,..... 5

Under two years.

Jacob C. Haight, Dover Plains, Dutchess county, 1st prem.,. 10
Walter Wakeman, Northeast, Dutchess county, 2d premium, 8
E. G. Cook, Belleville, Jefferson county, 3d premium,..... 5

EWES—*Two years.*

Joseph Haswell, 2d premium,.. 8
O. Howland, Owasco, Cayuga county, 3d premium,..... 5

Under two years.

Joseph Haswell, 2d premium,..... 8
Daniel S. Curtis, Canaan Center, Columbia co., 3d premium, 5

Buck lambs.

Walter Wakeman, Northeast, Dutchess county, three buck lambs, 1st premium,..... 5
Joseph Haswell, Hoosick, Rensselaer county, 2d premium,.. Morrell's Shepherd.

Ewe lambs.

O. Howland, Owasco, Cayuga county, three ewe lambs, 1st premium,..... ..... $5
E. G. Cook, Belleville, Jefferson county, 2d premium,..... Morrell's Shepherd.

Shepherd's dog.

Lewis G. Morris, Fordham, Westchester county, 1st prem.,.. $5
Joseph Beers, New-York, 2d premium,.....Morrell's Shepherd.

Discretionary.

E. G. Cook, Belville, Jefferson county, five ewes,..... $5
Walter Wakeman, Northeast, Dutchess county, three buck lambs, fine wool,..... 5

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R. A. Alexander, Woodburn, Kentucky, Leicester buck, very superior, 1st premium,.....

Ralph Wade, Coburgh, Canada West, five ewes, 1st prem.,..

Middle Wooled.

George Hartshorne, Rahway, New Jersey, buck, 1st prem.,..

George Hartshorne, 5 ewes, 1st prem.,.....

George Hartshorne, 3 ewe lambs,.....S. Silver M

Commended, Special Premiums.

John T. Andrews, West Cornwall, Conn., long wooled Oxfordshire buck, overlooked by committee,.....

John T. Andrews, long wooled ewe and twin lambs,.....T

Cashmere goats.

Dr. James B. Davis, Columbia, S. C.

The committee deem the attempt to improve this species of animal creation of the highest interest to the agriculturist, ar destined materially to increase the wealth and resources of farmer. From its novelty, the skill and courage with which experiment has been conducted by the very distinguished ge man from a sister State, your committee deem it due to the re as well as an appropriate compliment to him, to extend to the honor of the *gold medal* of the society, and a more exte notice of the quality, breeding of this animal, of the As steppes, and its domestication in this climate, with other ma of a kindred interest, will be furnished hereafter.

MERINOES—*Buck.*

George Campbell, West Westminster, Vt., 1st prem.,.....

George Campbell, 5 ewes, 1st prem.,.....

SWINE.

LARGE BREED—*Boars.*

L. G. Morris, Fordham, Westchester county, Berkshire, "Sir Robert," 1st prem.,.....

Edward Wait, Montgomery, Orange county, 2d prem.,.....

Samuel Love, Fifty-third street, New-York, Lincolnshire, 1 year, old, 1st prem.,.....

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boar, "Uncle Tom," 2d prem., ... $5

James Feitner, Forty-eighth street, New-York, Suffolk, under 1 year, ... 8

Wm. Love, Seventy-second st., New-York, Essex, 2d prem., .. 4

SOWS—*Breeding.*

Samuel Love, Fifty-third street, New-York, Lincolnshire, 2 years old, 1st prem., ... 10

Hungerford & Brodie, Adams, Jefferson county, 1 year old, 1st prem., ... 10

Samuel Love, Fifty-third st., New-York, Berkshire, 2d prem., 5

Samuel Love, Fifty-third street, New-York, Cheshire, under 1 year, 1st prem., ... 8

William Love, Seventy-second street, New-York, Suffolk, 2d prem., ... 4

William Love, Seventy-second street, N. Y., lot of 5 pigs under 10 months, 1st prem., ... 8

SMALL BREED—*Boars.*

Lewis G. Morris, Fordham, Westchester county, Berkshire, two years old and upwards, 1st prem., ... 10

William Ilsley, 132d street, N. Y., Suffolk, 2d prem., ... 5

P. T. Barnum, Bridgeport, Conn., Suffolk, one year old, 1st prem., ... 10

Lewis G. Morris, Fordham, Westchester county, Suffolk, 2d prem., ... 5

George W. Wilson, Malden, Mass., Essex, 6 months and under 1 year, 1st prem., ... 8

Sherman Griswold, Austerlitz, Columbia county, Suffolk, 2d prem., ... 4

SOWS—*Breeding.*

P. T. Barnum, Bridgeport, Conn., Suffolk, two years old, 1st prem., ... 10

Wheeler Hale, Eighty-first street, N. Y., Suffolk, two years old, 2d prem., ... 5

Lewis G. Morris, Fordham, Westchester county, Suffolk, one year old, 1st prem., ... 10

William Ilsley, 132d street, N. Y., Essex, 2d prem., ... 5

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Wm. H. Hibbard, New-York, Sumatra game, 1st prem.,.... $3
Fordham Morris, Westchester, Mexican game, 1st prem.,... 3
George Anderson, Albany, Buff Shanghai, 1st prem.,..... 3
William E. Haxton, Beekman, New-York, Buff Shanghai, 2d prem.,.. 2
George Anderson, White Shanghai, 1st prem.,..... 3
Cummings & Haight, Rochester, White Shanghai, 2d prem.,. 2
H S. Ballow, Blackston, Mass., Gray Shanghai, 1st prem.,. 3
H. S. Freeman, Sandlake, Rensselaer co., Gray Shanghai, 2d prem., ... 2
L. Livingston, Rhinebeck, Dutchess co., Black Shanghai, 1st prem.,..... 3
H. Johnson, Paterson, New Jersey, Black Shanghai, 2d prem., 2
George Anderson, Dominique Shanghai, 1st prem.,..... 3
H. Johnson, Dominique Shanghai, 2d prem.,..... 2
S. Freeman, Sandlake, Gold Lace Bantams, 1st prem ,..... 3
S. Freeman, Sandlake, Gold Lace Bantams, 2d prem.,..... 2
S Freeman, Sandlake, Silver Lace Bantams, 1st prem.,..... 3
H. S. Freeman, Java Bantams, 1st prem.,..... 3
Cummings & Haight, Rochester, Java Bantams, 2d prem.,.. 2
H. Johnson, Paterson, African Bantams, 1st prem.,..... 3
Wm. Simpson, jr., West Farms, African Bantams, 2d prem.,. 2
Fordham Morris, Fordham, Bantams, 1st prem., ... 3
Edward Haight, Westchester, Bantams, 2d prem.,..... 2
R. R. Morris, Westchester, lot native, not less than six, 1st prem.,..... 3

TURKEYS.

O. Howland, Owasco, Cayuga co., turkeys, 1st prem.,..... $3
Cummings & Haight, Rochester, turkeys, 2d prem.,..... 2
Cummings & Haight, pair wild turkeys, 1st prem.,..... 3
O. Howland, Owasco, pair wild turkeys, 2d prem.,..... 2

DUCKS.

H. Johnson, Paterson, Muscovy, 1st prem.,..... ..... $3
William Simpson, jr., West Farms, Muscovy, 2d prem.,.... 2
R. R. Morris, Westchester, Black Cayuga, 1st prem.,..... 3
Fordman Morris, Fordham, Black Cayuga, 2d prem.,..... 2

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H. Johnson, Paterson, New Jersey, Topknots, 2d prem.,....
Lewis M. Brown, common ducks, 1st prem.,.....
T. Frost, New-York city, common ducks, 2d prem.,.....

GEESE.

H. Johnson, Paterson, New Jersey, common, 1st prem.,....
H. Johnson, Bremen, 1st prem.,.... .....
William Moore, New York, Bremen, 2d prem.,.....
H. Johnson, China, 1st prem.,.....
Wm. Moore, China, 2d prem.,..... .....

GUINEA FOWLS.

Charles B. Janes, Westchester, 1st prem., ...

PIGEONS.

T. M. Rodman, best and greatest variety, 1st prem.,.....
Joseph L. Dean, New-York, best and greatest variety, 2d prem.,.....

Best exhibition of poultry owned by the Exhibitors.

H. Johnson, Paterson, N. J., 1st prem.,.....
Cummings & Haight, Rochester, N. Y., 2d prem.,.....

RABBITS.

Samuel Fail, West Farms, lot large eared, 1st prem.,.....
Samuel Fail, lot large eared, 2d prem.,.....
R. R. Morris, Westchester, pair common, 1st prem.,.....
John Johnson, New-York, pair common, 2d prem.,.....

Commended by the Committee.

John Grimes, New-York, rat terrier dog and pups, 1st prem.

PLOWING.

Newel French, Detroit, Michigan, Michigan Double Plow horses, 1st prem.,..... ... .
G. E. Sheldon, Sennett, Cayuga Co., ox team, A. B. Munr plowman, 2d prem , ...
D. B. Westfall, Lyons, Wayne Co., 3d prem., ...

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Morris & Purdy, Morrissania, John Snyder, plowman, 1st prem., ... $4

Wm Batty, Morrissania, John Brady, plowman, Allen's Eagle Plow, 5th prem., ... 2

John Rae, Morissania, plowed himself, horses, 6th prem., . Trans.

SPADING.

John Base, 1st prem., ... Silver Cup, $10

Daniel Norton, Morrissania, 2d prem., ... Silver Cup, 8

Michael Skiverton, 3d prem., ... Silver Medal.

John White, 4th prem., ... Gardeners' Comp. and Manual.

Joseph Fitztudler, 5th prem., ... Trans.

Wm. McCoy, 6th prem., ... Trans. Am. Institute.

FARM IMPLEMENTS—No. 1.

Wm. Anderson, Jacksonville, Tompkins Co., harrow, 1st prem., ... $5

John Mayher & Co., New-York, harrow, 2d prem., ... 3

J. S. & M Peckham, Utica, corn cultivator, 1st prem., ... 5

James P. Cramer, Schuylerville, Saratoga Co., corn cultivator, 2d prem., ... 3

John Mayher & Co., New-York, fanning mill, (Grant's patent,) 1st prem., ... 5

N. J. Ledroit, Spring Valley, Rockland Co., fanning mill, 2d prem., ... 3

Reuben Daniels, Woodstock, Vt., corn stalk cutter, 1st prem., 5

J. C. Rich, Penfield, Monroe Co., corn stalk cutter, 2d prem., ... 3

D. C. Cummings, Fulton, Oswego Co., hay and straw cutter, 1st prem., ... 5

John Mayher & Co., New-York, spiral cylinder machine, 2d prem., ... 3

C. B. Hutchinson & Co., Auburn, N. Y., corn and cob crusher, by horse power, 1st prem., ... 5

John Mayher & Co., New-York, clover huller, 1st prem., .. 5

Kipp & Son, Eldridge street, N. Y., farm horse cart, 1st prem., ... 5

Longett & Griffing, New-York, horse rake, 1st premium, ... 4

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R. L. Allen, New-York, horse rake, second prem.,.....
Deering & Dickinson, ox yoke, Albany, 1st premium,.....
R. L. Allen, New-York, ox yoke, 2d premium.....

Farm Implements—No. 2.

John Mayher & Co , New-York, churn, 1st premium, ...
R. L. Allen, New-York, churn, 2d premium,.....
R. L. Allen, New-York, cheese press, 1st premium,.....
John Mayher & Co., New-York, cheese press, 2d premium,.
John Mayher & Co., New York, grain cradle, (Grant & Vail's patent,) 1st premium,..... .....
G. P. Kelsey, grain cradle, 2d premium,.....
Sheeble & Lawson, Philadelphia, hay fork, 1st prem.,.....
Silas Harris, Pine Plains, Dutchess county, grass scythes, 1st premium, ...
Silas Harris, Pine Plains, Dutchess county, cradle scythes, 1st premium, ...
Henry Patridge & Co., Medfield, Mass., manure forks, 1st premium, ...
Sheble & Lawson, Philadelphia, manure forks, 2d premium,
Henry Patridge & Co , potato digger, 1st premium, ...
S. Dennis & Co., New-York, wire brooms, 1st premium, ...

Special.

E. W. Phelps, Elizabethtown, N. J., bee hive,.....
Asa Johnson, Cairo, Greene county, bee hive, 2d premium,.
John Mayher & Co , New-York, sausage cutter, ...
John Mayher & Co., New-York, sausage stuffer,.....
S. B. Dodge, Roslin, L. I , pair horse shoes and manure fork,

Farm Implements—No. 3.

E. W. Badger & Co , Fly Creek, Otsego county, portable saw mill, 1st premium, ...
Deering & Dickinson, Albany, corn sheller, hand power, 1st premium, ...
John Mayher & Co., New-York, corn sheller, 2d premium,..
John Mayher & Co., New-York, vegetable cutter, 1st prem.,
Geo. Campbell, Westminister, Vt., vegetable cutter, 2d prem.,
R. L. Allen, New-York, portable grist mill, 1st prem,.....
R. L. Allen, New-York, farm scraper, 1st prem.,.....

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John Mayher & Co., New-York, farm scraper, 2d premium, . $3
John Mayher & Co., New-York, dog power churning machine, ... 5
Cowing & Co., Seneca Falls, N. Y., best pump for farm use, 5
John Mayher & Co., New-York, best horse hoe for cleaning grain crops,..... 20
R. L. Allen, New-York, best and most extensive collection of implements,..... 25
John Mayher & Co., New York, 2d best and most extensive collection of implements, ... 15
R. L. Allen, New York, best collection made by exhibitor,.. 25
John Mayher & Co., New-York, 2d best collection made by exhibitor, ... 15
P. Dickinson, patent corn sheller,..... Dip.

MACHINERY.

Halliday, McCray & Co., Ellington, Conn., most valuable newly invented machine for farmer, for a new application for a self-regulating windmill, for elevating water, or other motive power, ... Dip. and Silver Med.
Fisk Russell, Boston, Mass., for new application of oscillating and reversible knives to mower and reaper, and cams for communicating the motion, ... Dip. and Silver Med.
Henry Waterman, Williamsburgh, L. I., for his new application of oscillating motion to the cutting bar, Dip. & Sil. Med.
Fairbanks & Co., St. Johnsbury, Vt., best hay and cattle weighing scales,..... 20
Deering & Dickinson, Albany, Dederick's portable hay press improved, ... S. Medal.
Appleton & Alderson, Albany, best drain tile, ... 5
Meneeley, Sons, West Troy, N. Y., best church and steamboat bell, ... Dip.
M. P. Coons, New-York, best wire fence for farm purposes, 10
R. L. Allen, New-York, best assortment of plows in use, Dip. and Silver Medal.
E. P. Garrison, New-York, best door lock,..... Dip.
Holmes & Butler, New-York, best safe,..... Dip.
John Sharp, Wood Haven, L. I., best assortment edged tools, Dip.

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Bickford & Huffman, Macedon, Wayne co., best grain drill, with seed and fine manure attachment,..Dip. and Silver medal.

F. Seymour, East Bloomfield, N. Y., an excellent broadcast sower and seed drill, with grass and fine manure attachment,..... .....Dip. and S. S. medal.

Foster and Jessup, Palmyra, N. Y., good drain drill, with cast iron feeders, of novel construction,.....Dip.

Simeon Ingersoll, New York, rock drilling machine, very simple in construction,.....Trans.

Wm. J. Cassalman, West Farms, N. Y., a hub-borer, an excellent machine, possessing much merit,.....Dip.

John M. Earls, Troy, N. Y., a smut machine, for some important improvements it has strong testimonials,.....Dip.

Isaac De Zouche, Troy, N. Y., cast iron cornice, and specimens of artistic carving, beautifully executed,....S. S medal.

Jordan L. Mott, Mott Haven, best exhibition and arrangement of caldrons, eight sizes, from ten to 120 gallons,....Dip.

Munsell, Thompson & Munsell, 115 Beekman street, New York, a good caldron,.....Trans.

Jordan L. Mott, Mott Haven, best specimen cast iron pipe,...Dip.

C. B. Hutchinson & Co., Auburn, N. Y., model of stave machine, a novel cutting table, and simple machine,.....Dip.

Wm. Webster, Morrissania, patent metal binding and tubing machine, a good machine, and entitled to notice...S. S. medal.

John Massey, 197 East 26th street, New York, a grain dryer, containing merit,.....Dip.

W. W. Seymour & Co., New York, case of small machinery, worthy of notice,.....Dip.

Ezra Ripley, Troy, N. Y., sample cast iron rasps, moulds, &c., operating on a new principle, worthy of encouragement,.. S. S. medal.

Frederick Lœw, 176 3d street, New York, specimens of die sinking a beautifully executed work. (Mr. Lœw is not yet twenty-one years of age.).....S. S. medal.

Longett & Griffing, New-York, cider press combined with cutter box,.....Dip.

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exhibition of blacksmith's portable forges,.....

L. P & W. F. Dodge, Newburgh, portable garden and gree house engine, ...

Jordan L. Mott, fine exhibition of cast iron bath tubs,.... '

William Gee, 58 Fulton street, New-York, self acting gen rator and a bottling machine,.....

Ent & Savers, 122 Grand street, New York, model of Prir dle's iron farm fence, good principle,.....

L. B. Howe, 10 Jacob street, New-York, boot and shoe peg ging machine, novel arrangement,.....'

M. P. Coons, New-York, iron fence, good sample,.....

M. P. Coons, New-York, King's patent improved railwa washing machine—the best,.....

Lester Patee, Peoria, Ill., Malone's patent corn planter (th best),..... ... ..

James T. King, 251 Broadway, New-York, steam washin machine, good arrangement.....

William G. Creamer, New-York, portable garden engine,...'

Hitchcock & Dunn, 205 Pearl street, New-York, Gaylord double flange salamander safe, a strong and *safe* safe,...

A. D. Smith, Meredith, Delaware county, Yankee blad churn, a simple and novel one,.....'

A. Hine, Fayetteville, Onondaga county, rotary field cult vator,..... .....

J. L. Brown, 234 Water street, hay platform and portabl scales, a good exhibition, worthy of notice,.....

D. R. Prindle, East Bethany, Genesee county, self-sustainin portable folding wood fence,.....

S. B. Cauley, Kirk's patent bran duster, a machine of grea importance, and entitled to notice, ...

Jordan L. Mott's model railroad wheel, and Harvey's ste iron ore, bloom and bar iron, cast steel and cutlery, made said ore, will be further examined and reported upon her being of great importance.

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DAIRY.

BUTTER.

B. A. Hall, New Lebanon, Columbia co., best 50 lbs. butter, $15
Thomas Paxson, Eden, Erie co., 2d best do 10
E. Sherman, Searsville, Orange co., 3d best do 5

Butter made by girls under 21 years of age.

Miss Emily J. Clarke, Pittstown, Rensselaer co.,.....Silver Cup.
Miss Minerva S. Rice, Greenwich, Wash. co., Pr. Butter Knives.
Miss Sophia A. Ottley, Oaks Corners, Ontario co., Tea Spoons.
Miss Mary J. Morrison, Montgomery, Orange co., S. S. Medal.

(The committee on butter consider Ashton's Liverpool salt by all means the most preferable for butter. Mr. Amos Goulding, one of the committee, has a large butter dairy for many years, and considers one ounce of salt to the pound to be sufficient to preserve butter through the season. The great fault with butter making is being too highly seasoned or salted, and more particularly with salt of an inferior quality, such as ground rock salt, &c.)

CHEESE.

D. & S. Bonfoy, Winfield, Herkimer co., best 1 year old,.... $20
Wm. C. Young, Litchfield, do 2d best do ... 15
A. Rider, do do 3d best do ... 10
S. Snell, Manheim, do best under 1 year old, 20
D. & S. Bonfoy, Winfield, do 2d best do ... 15
J. Rice, Salisbury, do 3d best do ... 10
J. Broat, Little Falls, do 4th best do ... 5
A. Coon, Russia, do 5th best do Trans.
J. & G. Williams, Rome, Oneida co., had on exhibition two large cheeses, weighing upwards of 500 lbs. each, especially commended, and recommended for a discretionary premium,..... 25

HONEY.

Henry Eddy, North Bridgewater, Mass., best 20 lbs.,..... 5
James Curtis, Blooming Grove, Orange co., N. Y., 2d best,.. 3
M. Quimby, Palatine Church, N. Y., 3d best,.....Trans.

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GRAIN AND SEEDS.

W. P. Ottley, Phelps, Ontario co., best white winter wh
Solomon D. Crispel, Hurley, Ulster co., best barrel of rye
E. Sherman, Crawford, Orange co., 2d best barrel rye,..
W. P. Ottley, Oaks Corners, Ontario co., best oats,.....
Dr. P. Crispel, Jr., Hurley, Ulster co., 2d best oats,.....
O. Howland, Owasco, Cayuga co., best barley, 4 rowed,..
do do do 2d best do, 2 rowed,..
W. P. Ottley, Oaks Corners, best Indian corn,.....
Solomon D. Crispel, Hurley, Ulster co., 2d best Indian co
E. Sherman, Crawford, Orange co., best buckwheat,.....
H. Morrison, Montgomery, do, 2d best do,.....
do do do, best timothy seed,....
E. Sherman, Crawford, do, 2d best do,.....
O. Howland, Owasco, best 12 ears yellow seed corn,.....
Horace Greeley, Chappaqua, Westchester co., 2d best 12 e
yellow seed corn,.....
Cornelius T. Smith, Nyack, Rockland co., best 12 ears wh
seed corn,.....
O. Howland, Owasco, 2d best 12 ears white seed corn,...
Francis Briell, Astoria, L. I., best 12 ears sweet corn,....

COMMENDED.

Hiram Darrow, Cambridge, Washington county, fine sam
flax,.....
D. A. Bulkeley, Stone Hill Farm, Williamstown, Mass., f
exhibition of grains in case,.....

VEGETABLES.

A. Fitzgerald, Blackwell's Island, white turnips, 1st pre
Horace Greeley, Chappaqua, white turnips, 2d prem.,...
William Ilsley, Eighth avenue, N Y., carrots, 1st prem.,
Francis Briell, Astoria, L. I., carrots, 2d prem.,.....
Wm. Ilsley, Eighth avenue, beets, 1st prem.,.....
Morrison Baity, West Farms, beets, 2d prem.,.....
Wm. Ilsley, Eighth avenue, parsneps, 1st prem.,.....
Z. M. Saunders, Albany, onions, 1st prem.,.....
James Halleck, Whitestown, Oneida co., onions, 2nd pre

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1st prem.,..... $3

Morrison Baity, West Farms, 6 heads cabbage, 2d prem,.... 2

Morrison Baity, West Farms, tomatoes, 1st prem.,..... 3

James Weir, Bay Ridge, L. I., tomatoes, 2d prem.,..... 2

Robert R. Morris, Westchester, purple egg plants, 1st prem., 3

E. Sherman, Crawford, Orange co., purple egg plants, 2d prem. 2

E. Sherman, Crawford, Orange co., sweet potatoes, 1st prem., 3

James Halleck, Whitestown, lima beans, 1st prem.,..... 3

Francis Briell, Astoria, L. I., lima beans, 2d prem.,..... 2

Joseph Corkey, Seventy-ninth street, N. Y., lettuce, 1st prem., 3

Joseph Corkey, Seventy-ninth street, N. Y., double parsley, 1st prem.,..... 3

Z. M. Saunders, Albany, double parsley, 2d prem.,..... 2

James Halleck, Whitestown, garden squashes, 1st prem ,... 3

Joseph Corkey, Seventy-ninth street, N. Y., garden squashes, 2d prem.,..... 2

John Butterfield, Utica, field pumpkin, 1st prem.,..... 3

James Halleck, Whitestown, table potatoes, 1st prem.,..... 3

J. W. & J. S. Vaile, table potatoes, 2d prem., ... 2

J. C. Beekman, N. Y., greatest variety of vegetables,..... 10

SPECIAL.

Francis Briell, Astoria, L. I., Savoy cabbage,..... 2

E. F. Gray, North Adams, Mass., Albion squash,..... 2

Francis Briell, Astoria, six cheese pumpkins,..... 3

Edward Archer, Washington Heights, N. Y., French pumpkin, 1

Wm H. Mitchell, Barrytown, Dutchess co., salsify,..... 3

A. Fitzgerald, Blackwell's Island, salsify,..... 2

C. E. Wheeler, North Orange, N. J., peppers,..... 3

R. D. Weeks, Wheatley, Mass , seedling potatoes, "Nonpareil," 3

H. Morrison, Montgomery, Orange co., N. Y., thirty varieties of potatoes,.... 3

Alanson Nye, Montpelier, Vt., five fine specimens of potatoes, different varieties,..... 2

D. Grenton, Morrissania, Westchester, co., twenty-five varieties potatoes,.... 2

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Wood's seedling potatoes, superior,.....

D. A. Bulkeley, Stone Hill Farm, Northampton, Mass., fine seedling potato,.....

A. S. & E D Edget, Camden, Oneida co., fine samples green corn, peas, tomatoes, and string beans preserved in tin cans,

FLOUR.

Hecker & Brothers, Croton Mills, N. Y., best Genesee flour,.

Mrs. E. Hopkins, Lyons, Wayne Co., yeast compound,.....

DOMESTIC MANUFACTURES.

WOOLEN.

Mrs. James T. Van Namee, Pittstown, Rensselaer co., woolen flannel, 2d prem.,.....

Enoth Ottley, Phelps, Ontario co., rag carpet, 1st prem., ...

Mrs. James T. Van Namee, rag carpet, 2d prem.,.....

Kersey, &c.

Mrs. James T. Van Namee, 2d best kersey,.....

Mrs. Jonathan Tallcott, Rome, Oneida co., woolen knit stockings, 1st prem.,.....

Mrs James T. Van Namee, woolen knit stockings, 2d prem.,

Miss Kate Crocker, Vernon, Oneida co., fringe mittens, 1st prem.,.....

Miss Mary Crocker, Vernon, Oneida co., fringe mittens, 2d prem.,.....

Special.

Miss Kate Crocker, Vernon, Oneida co., extra fringe mittens,

Mrs. R. Wilson, Syracuse, long woolen stockings, Canada style,.....

Mrs. James T. Van Namee, check woolen mittens,.....

LINEN.

Mrs. Joseph Daniels, Middle Grove, Saratoga co., 10 yards linen, 1st prem.,.....

Mrs. L. T. Marshall, Vernon, Oneida county, 10 yards linen, 2d prem.,.....

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Mrs. J. T. Van Namee, 10 yards linen, 3d prem.,.....
Mrs. J. T. Van Namee, linen diaper, 1st prem.,.....
Miss Kate Shaw, Rensselaerville, Albany co., cotton k
stockings, 1st prem.,..... .....
Mrs. Joseph Daniels, Middle Grove, cotton knit stockings,
prem., ...
Mrs. B. R. Voorhees, Amsterdam, N. Y., linen knit sto
ings, 1st prem.,.....
Mrs. J. T. Van Namee, linen knit stockings, 2d prem.,...

Special.

Mrs. E. Hoyt, Edinburgh, Saratoga co., knit cotton b
spread, ...
Diamond Mills, Manufacturing company, Lansingburg, N.
John Q. Kellogg, agent, N.Y., a large case of linen thre
of every conceivable color and variety,.....

MANUFACTURES.

G. H. Gilbert, Ware, Mass, 4-4 white flannel,.....
Same. thirty inch white flannel,.....
Steele & Co., 53 Nassau street, N. Y., superior feather du
ers,.....

NEEDLE WORK.

Mrs. C. O. Newton, Homer, N. Y., best cloak,.....
Mrs. Lewis Frank, New-York, best Turkish embroidery,..
Miss Kate Shaw, Rensselaerville, best French needlewo
handkerchief,.....
Mrs. C. O. Newton, Homer, Cortland county, 2d best,....
Mrs. Lewis Frank, New-York, best worsted embroidery b
pull, ...
Mrs. B. R. Voorhees, Amsterdam, Montgomery co., seco
best embroidery bell pull,.....
C Chinnock, Harlem, N. Y., best papier mache,.....
Wm. Simmons, New-York, one case best silk bonnets, (
mestic,).....
Mrs. G. Schleyel, New-York, second,.....
Mrs. H. S. Jones, New-York, third,.....
L. Binns, New-York, third best straw bonnets (domestic)

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Wm. Havens, New-York, best wax fruit,.....

Miss Sarah Shove, Katonah, N. Y., best wax flowers.....

Miss Louisa M. Harrell, North White Creek, Washington c best pencil drawings,.....

DISCRETIONARY.

Mrs. H. J. Turner, Fort Wayne, Indiana, best knit counte pane, ...

Mrs. E. Hoyt, Edinburgh, Saratoga county, second best k counterpane,.....

Mrs. Norton S. Collins, Brooklyn, L. I., best silk quilt,..

Miss E. A. Richmond, Brooklyn, L. I., second best patc work quilt,.....

Mrs. H. S. Jones, 375 Broadway, N. Y., best dress caps,..

Mrs. E. S. Hillier, New-York, second best dress caps,....

Madame Demarest 375 Broadway, N. Y., best paper patter for ladies' and children's apparel,.....

Miss P. M. Fonda, Troy, N. Y., best hairwork bouquet a basket, ...Dip. a

Mrs. B. R. Voorhees, Amsterdam, N. Y., best collars a needle work,.....Si

FLOWERS.

PROFESSIONAL LIST.

John Hewitt, gardener to Alfred Bridgeman, Astoria, b display of cut flowers,.....Silver cup, va

J. W. Wood, Washington Heights, 2d best,.....Silv

Dahlias.

M. Donadi, Astoria, L I, best collection,.....

John Hewitt, gardener to Alfred Bridgeman, Astoria, 2d be

M. Donadi, best 24 dissimilar blooms, 1st prem.,.....

John Hewitt, gardener to A. Bridgeman, 2d prem.,.....

J. W. Wood, Washington Heights, best 12 dissimilar bloo

James Weir, Bay Ridge, L. I., best American seedling not fore exhibited,.....Silv

Roses.

D. Boll, New-York, greatest number of newest varieties,.

M. Donadi, Astoria, L. I., 2d greatest number of newest rieties, ...

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eties, with names,..... $5

M. Donadi, Astoria, L. I , newest and best 12 varieties, with names,.... 3

James Weir, Bay Ridge, L. I., 2d best,..... 2

Phloxes.

D. Boll, New-York, greatest number of newest and best varieties, ... 5

China Asters.

Michael McGuinnis, Staten Island,..... .....Silver Med.

Verbenas.

John Dingwall, Albany, N. Y., greatest number of newest and best varieties,..... 5

German Asters.

Michael McGuinnis, Staten Island, best collection,.....Sil. Med.

Discretionary.

W. A. Burgess, Glenwood Nursery, L. I., four new dahlias,. 5

W. A. Burgess, one seedling dahlia,..... 5

Adolph Sholtz, Mott Haven, seedling petunia "Harmonia,". Dip.

John Hewitt, Astoria, beautiful basket bouquet,.....
Buist's Flower Garden Directory.

AMATEUR LIST.

Samuel Munn, Mott Haven, Westchester county, best display cut flowers,.....Sil. Med.

Mrs. William Newcomb, Pittstown, Rensselaer county, 2d best,..... 2

Dahlias.

John Noble, gardener to George W. Thatcher, Sunny Side Place, Westchester county, greatest number of newest and best varieties,..... 5

James Weir, Bay Ridge, L. I., 2d best,..... 3

James Weir, best 12 dissimilar blooms, with names,..... 3

Roses.

James Weir, Bay Ridge, L. I., best 12 varieties, with names,
Silver Medal.

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Mrs. James T. Van Namee, Pittstown, Rensselaer county, greatest number of newest and best varieties, ...

Mrs. Wm. Newcomb, Pittstown, Rensselaer county, 2d best,

James Weir, Bay Ridge, L. I., best 12 distinct varieties, with names, ...

Mrs. James T. Van Namee, Pittstown, Rensselaer county, 2d best, ...

Mrs. James T. Van Namee, Pittstown, Rensselaer county, best 6 varieties, ...

Adolph Sholtz, gardener to Samuel Munn, Mott Haven, Westchester county, 2d best, ...

Phloxes.

Wrs. William Newcomb, Pittstown, Rens. county, greatest number of best and newest varieties, ...

Mrs. Wm. Newcomb, best seedling, ...

German Asters.

Mrs. William Newcomb, Pittstown, Rensselaer county, best collection, ...

Mrs. James T. Van Namee, Pittstown, Rensselaer county, 2d best, ...

Pansies.

Mrs. William Newcomb, best collection, ...

Mrs. James T. Van Namee, 2d best, ...

GENERAL LIST.

A. P. Cummings, Williamsburgh, best collection of house plants in pots, 20 different specimens, ... Silver Cup,

Samuel Munn, Mott Haven, Westchester county, 2d best, ...

Thomas Hogg & Son, Yorkville, best 10 plants in pots, different varieties, ...

John Hewitt, gardener to Alfred Bridgeman, Astoria, 2d best,

Floral Design.

H. A. Graef, Brooklyn, best., ...

Mrs. James T. Van Namee, Pittstwn, Rensselaer county, 2d best, ...

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W. & J. Park, Brooklyn, N. Y., best pair hand,..... $5
William Reid, 807 Broadway, N. Y., 2d best,..... 3
James Weir, Bay Ridge, N. Y., best pair parlor,..... 6
W. & J. Park, Brooklyn, N. Y., 2d best,..... 4

FRUIT.

PROFESSIONAL LIST.

Apples.

J. W. Bailey, Plattsburgh, greatest number of good varieties and specimens, ...Silver Cup, $15
A. Frost & Co., Rochester, N. Y., best 20 varieties and best grown, 3 specimens each, ... 10
Norman Crittenden, Ithaca, Tompkins county, 2d best, ... 5
John H. Coy, Ithaca, Tompkins county, best 12 varieties,.. 5

Pears.

Ellwanger and Barry, Rochester, N. Y., greatest number of good varieties and best specimens, ... Silver cup, value $15
Ellwanger & Barry, best 20 varieties, best specimens, 3 of each, ... Silver Plate, value $10.
A. Frost, Rochester, N. Y., 2d best,..... 5
Ellwanger & Barry, best 12 varieties, and best specimens, 6 of each,..... 8
Ellwanger & Barry, best 6 varieties, and best specimens,.... 5
Norman Crittenden, Ithaca, N. Y., second best,..... 3

Quinces.

Norman Crittenden, Ithaca, best 12,..... 3
A. Frost & Co., Rochester, 2d best,..... 2

Peaches.

John R. Wolsey, New-York, best variety, 12 specimens,.... 2

Plums.

Ellwanger & Barry, Rochester, N. Y., greatest number of varieties and best grown specimens, ... 5

Grapes.

R. T. Underhill, Croton Point, N. Y., greatest number of good native varieties and best grown specimens, ... 5
W. A. Underhill, 2d best,..... 3

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James Aitkin, Poughkeepsie, best one variety, ...

T. W. Ludlow, Jr., Yonkers, N. Y., greatest number of vai ties and best specimens of foreign grown under glass, ..

T. W. Ludlow, jr., best one variety,.....

Watermelons.

John Hope, Cruger's Island, Dutchess county, greatest nu ber of varieties, and best specimens,.....

AMATEUR LIST.

APPLES.

N. & E. S. Hayward, Brighton, Monroe county, greatest nu ber of good varieties, and best specimens, silver cup, vali

N. & E. S. Hayward, best 20 varieties and best grown, pl

A. Fitch, New Salem, Albany county, second best grown,.

Job T. Whipple, Greenwich, Washington county, seedli apple "Strawberry,"..... Elliott's Frui

James O. Miller, jr., Montgomery, Orange county, "Mille Seedling,"..... 1

E. R. Jones, Burnt Hill, Saratoga county, "Jones' Seedling apple,.....

PEARS.

Elisha Dorr, Albany, best 6 varieties, best specimens,....

Kirtland and McCulloch, Greenbush, best specimens of Vi galieu and Seckel pears,..... Elliott's Frui

W. F. Ingalls, Volney, Oswego county, pears,..... Do

PEACHES.

H. G. Dickinson, Lyons, N. Y., greatest number of varieti and best grown specimens correctly named, silver plate,

E. Sherman, Crawford, Orange county, 2d best,.....

H. G. Dickinson, best one variety, 12 specimens,.....

PLUMS.

Elisha Dorr, Albany, N. Y., greatest number of varieties a best grown specimens, plate, value,.....

Elisha Dorr, best six varieties, six specimens each, pla value, ...

Elisha Dorr, best single variety, 12 specimens,.....

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Theodore Fowler, East Fishkill, county of Dutchess, greatest number of good native varieties, and best grown specimens, $5

Isaac Merritt, Harts village, Dutchess county, 2d best,..... 3

Isaac Merritt, best single variety,..... 2

Discretionary.

A. P. Cummings, Williamsburgh, L. I., figs, ...Trans.

Elisha Dorr, Albany, N. Y., wax plum, a seedling, worthy of cultivation,.....Dip. & Trans.

W. S. Carpenter, Rye, Westchester county, seedling peach, "Carpenter's White,".....Trans.

Dr. Charles W. Grant, Iona, Rockland county, best ripened Catawba grape,.....Trans.

Isaac Merritt, Harts village, best cluster grape, foreign variety,.....Trans. Institute.

Michael McGuinnes, Factoryville, Staten Island, gooseberries of remarkable size,..... ....Buist's Flower Garden Directory.

Janes, Beebe & Co., 356 Broadway, N. Y., a display of beautiful bronze statuary and vases,.....Dip. and Sil. medal.

William Hunter, for a display of fine wooden tubs, for plants, $3

Palmer & Longking, 142 Chatham street, New-York, for fine ornamental flower stands,..... 3

Wm. A. Underhill, Croton Point, for superior Catawba grapes, the best exhibited, but unfortunately not seen by the judges, ...Silver Medal.

FOREIGN FRUIT.

PEARS.

Hovey & Co., Boston, Mass., for the greatest number of good varieties, and best specimens correctly named, two of each variety, silver cup, value,..... $15

Hovey & Co., best twenty varieties, best specimens, three of each, silver plate, value, ... 10

GRAPES.

E. W. Bull, by Hovey & Co., Boston, Mass , best variety of good native grapes, six bunches Concord grape,..... 2

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James Potter, Princeton, N. J., best specimens and greate number of varieties of foreign grapes, grown under gla six bunches of each,.... .....

James Potter, by James Kane, gardener, best single varie under glass, Black Hamburgh,.....

APPLES.

L. S. Pennington, Whiteside county, Ill., greatest number good varieties, and best specimens, at least three of eac silver cup, value,..... ....

L. S. Pennington, Ill., best twenty varieties, best grown a correctly named,.....

Special.

W. Antrobus Holwell, Quebec, C. W., fruit gatherer,.. .Sil. 1

PAINTINGS.

Miss Louise M. Harrell, North White Creek, New York, be specimen animal painting, in water colors,.....

Henry Strafford, London, England, by L. G. Morris, For ham, Westchester county, best specimen of animal pain ing in oil,.....

Robertson & Seibert, 120 Fulton street, New-York, best litl ographs,..... .....

Meade, Brothers, 233 Broadway, New-York, best daguerre types, ...

Commended.

T. W. Hitchcock, 294 Pearl street, New-York, best stenc engraving, ...

Root and Hovey, 263 Broadway, New-York, best sample ph tographs,.....

STOVES.

COOKING.

Munsell, Thompson & Munsell, New-York, best cooki stove for coal,.....Silver

J. L. Mott, Mott Haven, 2d best,.....S. Silver

J. L. Mott, best cooking range for families,.....Silver

HALL AND PARLOR.

Munsell, Thompson & Munsell, best,.....Silver

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Benjamin Pike, Jr., New-York, best set surveyors' instruments,.....Silver medal.
G. M. Bodine, New-York, case of superior watch crystals,.Dip.
G. M. Bodine, American glass guages,.....Silver medal.
A. D. Reeves, New-York, improved tailors' measure,.....Dip.
James McGregor, New-York, tin coffee and tea pot,.....Dip.
Benjamin Pike, Jr., New-York, theodolite,.....Dip.
M. J. Wheeler, Dundee, Yates county, double and single adjustable beveling planes,.....Dip.

LEATHER, &c.

F. J. Thring, 641 Broadway, New-York, patent leather travelling bags,.....Dip.
North American Gutta Percha Company, New-York, best gutta percha goods,.....Dip.
John Vandewater, New-York, oil paste blacking,.....Dip.

CABINET WARE.

C. D. Van Allen, New-York, invalid bedsteads,.....Dip.

CARRIAGES.

Lightbody & Stanley, Chatham Center, N. Y., best single top buggy, ...Silver Medal.
Lightbody & Stanley, best single riding buggy,.....Dip.

CLOTHING, HATS, FURS, &c.

Alexander D. Reeves, 321 Broadway, New-York, one case military clothing,.....Dip.

Discretionary.

Nathan Whitely, 131 West Eighteenth street, New-York, case oriental perfumed crystals,.....Dip. and S. S. Medal.
James B. Ashard, 672 Greenwich-st., case Oriental perfumed crystals,.....S. S. Medal.
Wm. Robinson & Co., Warsaw, N. Y., rope machine for making rope without warp,.....Sil. Medal and Dip.
John G. Bell, taxidermist, 289 Broadway, New-York, 5 specimens of natural history,.....Sil. Medal.

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F. C. Ingersoll, Elmira, N. Y., centric pestle and m
tar, ... S. S.

Seymour Brothers & Co., Hecla Works, Oneida Co., pat
self-fastening window blind, ...

James C. Y. Cornwell, Rome, Oneida Co., specimen card w
ting, ...

Dr. James Gray, 157 Grand street, New-York, artific
eyes, ...Silver

C. M. Saxton, 152 Fulton-st., New York, fine assortment
agricultural books, ...

F. Widdows, No. 1 Chambers street, New-York, boxes
ment, ...

Wm. Wilbur, New Orleans, by W. A. Depeyster, 58 7th
samples of cotton seed oil. The introduction of this a
cle is deserving of attention, ...Silver

J. E. Cheeney & Co., Rochester, Kedzie's rain water filter

Wm. H. Johnson, Granville, Mass., sewing machine, exc
lent for heavy work, ...Sil.

Norman W. Kingsley, 236 12th street, New-York, case
superior specimens of dentistry, ...Silver

Palmer & Co., Springfield, Mass., Palmer's patent leg, des
ving of all commendation, ...Sil. Medal a

A. Merriman, Middletown, Conn., dentistry and dental
struments, made by a practical dentist, ...Dip. & Silver

American Magnetic Sewing Co., 397 Broadway, New-Yo
sewing machine, ...

Medhurst & Heard, 27 Maiden Lane, wigs, superior wo
manship, ...Sil.

A. Kidder, Broadway, New-York, specimens of penm
ship, ... Sil.

James Renwick, Jr., New-York, roofing slate, equal in qu
ty to best Welsh slate, ...Sil.

J. G. Ambler, Washington Place, N. York, case of dentist
for superior workmanship, for improvements in setting
tificial teeth, method of attaching springs, &c., ...Sil.

S. O. Cross, Sandy Hill, Wash. Co., N. Y., model Cross's
tent grape frame, a very useful invention, ...Sil.

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but their attention called to them by Superintendent:

Glenn Putnam, 170 Broadway, New-York, safety fuse, an invention of very great merit, and calculated to diminish the dangers that attend the operation of blasting, by the methods heretofore used, ... Silver Medal.

J. S. Lyons, Morrissania, Chapin's insulator for lightning rods, ... Sil. Medal.

Special Committee.

James J. Butler, agent, 39 Vine-st., Cincinnati, Butler's mercantile writing fluid, ... Dip.

B. F. Payne, Albany, N. Y., fine cut tobacco, ... Dip.

N. Longworth, Cincinnati, Ohio, Catawba and Isabella wines, very superior, ... Dip.

James Powers, Catskill, N. Y., Catawba and Isabella wines, very good, ... Dip.

F. S. Cozzens, 85 Chambers-st., N. Y., two bottles of sweet Isabella wine, made near New-York. The bottle of dry, rather tart. The *sweet* Isabella excellent, partaking of a Malmsey character, ... Trans.

Lemuel Smith, Agent, 26 Washington-street, New-York, essence of coffee, manufactured by Daniel Bohler & Co., 218 Callowhill-st., Phil, ... Dip.

E. G. Connolly, Connolly's patent gravitating bolt, sash lock, gate latch, and cupboard catch, valuable articles, ... Dip.

Jacob Edson, Boston, Mass., check valve, with strainers, a valuable invention, ... Sil. Medal.

Harlem Clock Co., J. Settle Hyde, agent, 22 Maiden Lane, ... Silver Medal.

Nehemiah Dodge, 42 Waverly Place, N. Y., anti-choking arch valves, very valuable improvement, ... Silver Medal.

F. H. Strever, 170 Broadway, N. Y., force pump—excellent pump, ... Dip.

A. Towers, 93 Cedar-st., N. Y., improved ball valve pump and fire engine, ... Dip.

Jacob Edson, Boston, double acting force pump, ... Dip.

Cowing & Co., Seneca Falls, fire and garden engines, ... S. S. Med.

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T. Rodolph, 443 Water-street, N. Y., elevating scaffold,....

A. W. Gay & Co., No. 118 Maiden Lane, N. Y., Warner's patent suction, forcing, and anti-freezing pumps,.....

Henry Eddy, North Bridgewater, Mass., model of a new patent beehive,.....

D. B. Westfall, Lyons, Wayne Co., peppermint oils,.....

James Welsh, 683 Broadway, perfumery,.....

Horace Waters, 333 Broadway, piano forte,..... .....

Wm. B. Tilton & Co., 18 Beekman-st., N. Y., case musical instruments,.....

Rob. Barnes, 383 3d st., N. Y., model carriage spring, for light wagon,.....T

L. W. Boughton, N. Y., smoothing iron,.....T

H. R. & J. L. Plimpton, Westfield, Mass., sec'y bedstead and toilet table,..... .....T

J. T. Johnson, 317 Bowery, varieties of soap, starch, &c.,...

S. Harris & Son, 350 West 29th-street, folding chairs and stage seats,.... .....

Am. Union Boot and Shoe Co., J. R. Pitkin, 208 Broadway case children's shoes,.....

Staten Island Oil Co., adamantine candles,.....

E. Phalen, case wigs,.....

Brigs & Vickers, No. 6 Sullivan-st., N. Y., enamelled furniture,.....

Amos Cheney, Mt. Vernon, Westchester Co., Warner's patent washing machines,..... .....

E. M. Courtwright, Albany, portable circular scroll sawing machine,..... ....

R. C. Pratt, Canandaigua, a ditch digger, which promises well,.....

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in a sweepstakes for 3 year olds, two mile heats, in 3:52½—3.56½. track heavy. Amelia Priestman and Truxton paid forfeit. Value of the stakes, $1100.

1841.—Thursday, May 6, she ran over the Union course, L. I., three mile heats for the Jockey Club purse of $500, which she won in 6:03—6:05, though the track was very heavy, beating Sylphide, Prospect, Fleetfoot and Meridian.

On the 19th of May, Fashion came to the post at Camden, N. J., for a purse of $300, two mile heats. For some days previous she had been coughing, and though she was the favorite at starting, before a mile had been run it was evident she was greatly amiss; however, she won the second heat, and contested the fourth with Tyler, the winner; time 4:06—3:52—3:51½—3:56. Telemachus was ruled out after the third heat, and Trenton was distanced in the third.

Fashion next appeared on the Union course, October 7th, and won the two mile purse of $200 in capital style, and good time for a heavy track, beating the famous horse Trenton in 3:51—3:46½. This was a heavy betting race, Trenton having many friends, who eagerly took the odds.

On the 20th of the same month she won the three mile purse of $400, at Baltimore, Md., beating the renowned John Blount, Lady Canton and Stockton (the two latter distanced in the first heat) in 5:57—6:01—6:10; track very heavy. W. T. Porter, Esq., the editor of "The Spirit of the Times," describes this as the most extraordinary race of the season, and one which contributed more to Fashion's reputation than all her previous performances.

We next find her at Camden, N. J., on the 28th October, appearing at the post to start for the four mile purse of $800, in company with those nobles of the turf, Boston and John Blount. As may be supposed, an extraordinary race was looked for, but up to that time it had never entered into the mind of man that a four-year-old filly could win a four mile race in 7:42—7:48, as did

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he nobly contested the race with her, but Fashion won in 7:52½, although the track was not in good order for fast t

On the 4th November, Fashion and Blue Dick again n time, at Trenton, for the club purse of $800. The cou feet over a mile, but was in good order. Fashion won heats in 7:36—7:49.

1843.—At Trenton, May 11, Fashion won the three mi of $300, beating Mr. Lloyd's brother to Hornblower in 6:13, easily; track heavy.

At Camden, May 26, the editor of the "Turf Registe she had a "soft snap" in beating Blue Dick and Registe heavy track in 7:59—7:53, for the club purse of $700, f heats.

On the 1st of June she galloped over the Union cou miles, for the club purse of $800, no competitor appe dispute her claim.

On the 6th of October following she appeared at the the Mount Vernon course, Alexandria, D. C., to contend fo of $1,000, and an inside stake of $500 each, four mil Not having any competitors, she walked over the course money.

From Alexandria she was taken to the National c Washington, where, on the 16th October she met Winche Rienzi, whom she defeated with the greatest ease imagi 8:10—8:07, for the purse of $500, four mile heats.

At Baltimore, Md., on the 20th October, she again n Dick, and won from him the club purse of $800, four mi after a gallantly contested heat of 7:35½, and a walk ove second heat and money.

On the 26th October, Blue Dick, not wishing "to gi so," met Fashion and The Colonel at Camden, the thr entered for the club purse of $700, four mile heats. T was very heavy, and Fashion won with all ease, in 8:08–

1844.—Fashion's first race this year (being now sev old) was at Baltimore, Md., on the 10th of May. The

challenged her title to the club purse of $700, four mile l
but after Fashion winning one heat in 7:50, he allowed h
walk over for the money.

On the 6th of June, on the Union course, L. I., for the
purse of $1,000, four mile heats; Fashion, Blue Dick and Y
Dove were entered. A capital race ensued between the tw
mer (Young Dove being distanced the first heat), which
won by Fashion in four heats (the 2d being a dead heat
the third won by Blue Dick), in 7:46½—8:04½—7:53—
Track heavy.

On the 1st of October, on the Union course, Fashion won
Dunvegan (by Imp. Trustee out of Jemima) the purse of
three mile heats, in 6:13, with the greatest ease, Dunvegan
withdrawn after the 1st heat.

On the 18th of Oct. we find Fashion again in Baltimor
winner of the four mile purse of $400, for which she bea
Colonel and Alamode in 8:29, during a heavy rain which l
all day, and made the track very heavy. The Colonel m
desperate effort for the first heat, but could not reach the
so was withdrawn. Alamode was distanced the first heat.

On the 24th of October she appeared on the Beacon cours
posite New-York city, and ran for the three mile purse of
with Marchioness (by Imp. Rowton), whom she beat in 5:
5:57½

1845.—Fashion opened her campaign of 1845 on the 1
May, on the Union course, L. I., with the great sectional
between the North and the South, for $10,000 a side, $2,5(
feit, four mile heats.

Thos. Kirkman, of Alabama, named ch. m. Peytona, by im
ported Glencoe, out of Giantess by imp. Leviathan, 6 yea
old, 118 lbs., ...

Henry K. Toler, of New Jersey, entered ch. m. Fashion, b
Imp. Trustee' out of Bonnets-o'-Blue, by Sir Charles, 8 year
123 lbs., ...

Time, 7:39¾—7:45¼.

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In this race Fashion was not quite up to the mark, though she succeeded in helping Peytona to make one of the best four mile races ever run in this country.

On the following Saturday (May 17), over the same course, she beat Jeannetteau (by Imp. Leviathan) for the four mile purse of $1,000, in 8:38—8:48. Track very heavy.

On the 28th May, at Camden, N. J., for the club purse of $1,000, four mile heats, she beat Peytona with comparative ease in 7:48—7:57, thus proving herself to have been out of fix when running for the great match.

Her next victory was on the Union course, on the 23d October, when she beat Liatunah (by Imp. Ainderby) for the four mile purse of $1,000, in 7:43½, Liatunah having been withdrawn after the first heat.

1846.—Fashion (being now 9 years old) began her campaign of '46 at Baltimore, on the 14th of May, and after a capital race with Orator (by Boston), won the club purse of $600, four mile heats, in 7:36—7:51.

Over the Union course, L. I., June 2, she beat Ringgold (by Boston) and Patsey Anthony, for a purse of $600, four mile heats in 7:48½—8 02.

At Baltimore, on the 15th October, she gained an easy victory over Marietta (by Imp. Priam) and Claude Melnotte (by Boston). The latter split his hoof and was stopped the first heat, and Marietta, after fruitlessly contending for the first heat, was withdrawn. Time 5:43; three mile heats; purse $500.

1847.—Fashion's first race this year was at Baltimore on the 29th May; it was a three mile race for a purse of $400, for which Passenger (by Balie Peyton) most gallantly contended, winning the first heat and making a dead heat of the third, Fashion winning the 2d and 4th. Time 5:45—5:51—5:51—6:05.

On the Union course, October 6, she again met Passenger, who put in a claim for the purse of $1,500, four mile heats, and proved

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Date.	Course.	Dist'ce.	Time.	Prize.
1840. Oct. 21..	Camden, N. J.,	2 m h...	4:13—4:22,	$800
—— Oct. 27..	Trenton, N. J.,	2 do....	3:52½—3:56½,	1,100
1841. May 6..	Union Course, L. I.,	3 do....	6:03—6 05,	500
—— May 19..	Camden, N. J.,	2 do....	4:06—3:32—3:51½—3:56,	Lost.
—— Oct. 7..	Union Course, L. I.,	2 do....	3:51—3:46½,	200
—— Oct. 20..	Baltimore, Md.,	3 do....	5:67—6:01—6:10,	400
—— Oct. 28..	Camden, N. J.,	4 do....	7:42—7:48,	800
1842. May 10..	Union Course, L. I.,	4 do....	7:32½—7:45,	40,000
—— Oct. 6...	do do	4 do....	Walked over,	1,000
—— Oct. 29..	Camden, N. J.,	4 do....	7:38—7:52½,	2,000
—— Nov. 4...	Trenton, N. J.,	4 do....	7:36—7:49,	800
1843. May 11..	do do	3 do....	6:03—6:13,	300
—— May 26..	Camden, N. J.,	4 do....	7:59—7:53,	700
—— June 1..	Union Course, L. I.,	4 do....	Walked over,	800
—— Oct. 6...	Alexandria, D. C.,	4 do....	Walked over,	1,000
—— Oct. 13..	Washington, D. C.,	4 do....	8:10—8:07,	500
—— Oct. 20..	Baltimore, Md.,	4 do....	7:35½,	800
—— Oct. 26..	Camden, N. J.,	4 do....	8:08—8:08,	700
1844. May 10..	Baltimore, Md.,	4 do....	7:50,	700
—— June 6..	Union Course, L. I.,	4 do....	7:46½—8:04½—7:53—8:23,	1,000
—— Oct. 1...	do do	3 do....	6:13,	400
—— Oct. 18..	Baltimore, Md.,	4 do....	8:29,	400
—— Oct. 24..	Beacon Course, N. J.,	3 do....	5:50½—5:57½,	600
1845. May 13..	Union Course, L. I,	4 do....	7:39¾—7:45¼,	Lost.
—— May 17..	do do	4 do....	8:38—8:48,	1,000
—— May 28..	Camden, N. J.,	4 do....	7:48—7:57,	1,000
—— Oct. 23..	Union Course, L. I.,	4 do....	7:42½,	1,000
1846. May 14..	Baltimore, Md.,	4 do....	7:36—7:51,	600
—— June 2..	Union Course, L. I.,	4 do....	7:48½—8:02,	600
—— Oct. 15..	Baltimore, Md.,	3 do....	5:43,	500
1847. May 29..	do do	3 do....	5:45—5:51—5:51—6:05,	400
—— Oct. 6...	Union Course, L. I.,	4 do....	7:45½—7:48½,	Lost.
1848. May 19..	do do	4 do....	8:17,	1,200
—— Oct. 6...	do do	4 do....	7:39—7:44,	Lost.
—— Oct. 19..	Baltimore, Md.,	4 do....	7:50—7:56,	600

We may add, that Fashion took the first prize for the best brood mare exhibited at the American Institute in New-York in 1854.

A true copy from the record in the "American Turf Register" and the "Spirit of the Times."

WM. T. PORTER.

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PREMIUMS AWARDED AT WINTER MEETIN

FEBRUARY 15, 1855.

ESSAYS.

Winslow C. Watson, Port Kent, Essex county, prize essay on Practical Husbandry,. .... Plate, $

W. P. Prentice, Albany, prize essay, (for students,) on agriculture..... Plate,

Special.

Hon. George Geddes, Fairmount, essay on Rain, Evaporation, and Filtration,..... ..... Society's Gold Me

FARMS.

1. Wm. P. Ottley, Phelps, Ontario county, ... Plate,
2. George W. Coffin, Amenia, Dutchess county, ... Plate,

DRAINING.

Wm. P. Ottley, Phelps, 2d prem.,.....

FIELD CROPS—WHEAT, RYE, AND OATS.

For the best crop of winter wheat, $4\frac{766}{1000}$ acres, to Jarvis M. Skinner, Barre, Orleans county, 40 bushels, 16 lbs. per acre, first premium,.....

For the best crop of rye, to Hiram Converse, Jefferson co., $2\frac{233}{100}$ acres, 94 bushels, first premium,.....

For the best crop of oats, to E. M. Bradley, Ontario county, for Poland oats, $2\frac{40}{100}$ acres, $69\frac{79}{100}$ bushels per acre, weighing 39 lbs. per bushel, equal to $85\frac{1}{32}$ bushels per acre of 32 lbs. per bushel, first premium,.....

Second best crop, to E. M. Bradley, Ontario county, for common oats, $82\frac{1}{2}$ bushels per acre, second premium,.....

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Best 5 bushels spring wheat, John H. Zimmerman, Pamelia, Jefferson county, ... $5

Second do, David Coonradt, Brunswick, Rensselaer county, 3

Best 5 bushels rye, David Coonradt, ... 5

Second do, A. E. Van Allen, Greenbush, ... 3

Third do, Jacob Wally, Bethlehem, ... 2

Best 5 bushels two-rowed barley, weight 55 lbs. to the bushel, O. Howland, ... 5

Second do, weight 43 lbs., Wm. Davidson, Hartwick, Otsego county, ... 3

Best 5 bushels oats, 44½ lbs, David Coonradt, ... 5

Second do, 34½ lbs., Henry Schoonmaker, Albany county, .. 3

Third do, Jacob Wally, Albany county, 32½ lbs., ... 2

Best 5 bushels yellow corn, 60 lbs., Volney Burgess, Chatham, Columbia county, ... 5

Second do, 60 lbs., O. Howland, Auburn, Cayuga county, .. 3

Third do, 60 lbs. per bushel, James P. Noxon, White Creek, Washington county, ... 2

Best 5 bushels white corn, 58 lbs., David Coonradt, Brunswick, ... 5

Best 5 bushels peas, marrowfats, O. Howland, ... 5

Best 5 bushels large white beans called marrowfats, David Coonradt, ... 5

Third best, small white pea bean, David Coonradt, ... 2

Best 5 bushels small clover seed, 64 lbs., O. Howland, ... 3

Best 5 bushels timothy seed, 49½ lbs., O. Howland, ... 3

Second best do, 46 lbs., J. H. Zimmerman Pamelia, Jefferson county, ... 2

Discretionary.

Douw Van Vechten, Mohawk, for best quality of timothy seed, Vol. Trans.

Henry Schoonmaker, Bethlehem, best 5 bushels buckwheat, Two Vols. Trans.

William Davidson, Otsego county, for 5 bushels good quality of buckwheat, ... Vol. Trans.

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E. S. Hayward, Brighton, Monroe county, shipped in season for the exhibition, white winter wheat, red spring wheat, four and two rowed barley, and yellow and white corn, 5 bushels each, which the executive committee regret had been delayed on railroad. After the Society had adjourned, these articles arrived, and were of excellent quality, ... Discretionary Prem

FAT CATTLE AND SHEEP.

Best ox, 4 years old and upwards, John Lee, Cambridge, Washington county, ...
Second best do., Thos. Kimber, Onondaga county,. .....
Third best do., Levi Johnson, Jefferson county, ...
Best three years old steer, white Durham, Thomas Kimber, Onondaga county, ...
Second best do., Nathaniel Lynch, Auburn, ...
Third best do , Nathaniel Lynch, Auburn, ...
Best fat cow, roan Durham, 4 years old, Thos. Kimber, Onondaga county, ...
Second best do., W. F. Baker, Henrietta, Monroe county, ...
Best 3 years old heifer, Earl & Salisbury, Ellisburgh, Jefferson county, ...
Second best do., to do., ...
Best spayed heifer, 3 years old, Durham, A. Fitch, Albany co.
Best long wool sheep, to E. Gazeley, Clinton, Dutchess co., ..
Second best do , Elias W. Cady, Dryden, Tompkins co., ...
Third best do., Sandford Cook, New-Scotland, Albany co., ..
Best yearling long wool sheep, Wm. F. Baker, Henrietta, ..
Cross-breed sheep, Amos C. Wright, Rensselaerville, ...

DRESSED MEATS.

Sheep—Best long wool sheep first premium to E. Gazely Clinton, Dutchess county, ...
Middle wool, first premium to Snowden & Charles, Albany
Second do., to do., ...
Cross Breed—First premium to Obadiah Howland, Auburn
Second do., to do., ...
Hogs—Over 350 lbs.—First premium to George Swartz, Albany, ...

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Second do., to J. H. Gardiner, Albany, ... 3
Less than 350 lbs.—First premium to Snowden & Charles, Albany, ... 5
Sides of beef—First premium to Snowden & Charles, ... 5
Second do., to do., ... 3
Turkeys—First premium to O. Howland, Auburn, ... 2
Second do., to E. S. Hayward, Rochester, ... 1
Geese—First premium to Wm. Davidson, Hartwick, Otsego county, ... 2
Ducks—First premium to Wm. Davidson, Hartwick, Otsego county, ... 2

Several fine middle wooled carcases were exhibited by Patrick Downey, of Albany; but as the heads and feet were taken off, no preium could be awarded, as the rules of the Society require them to be dressed with them on.

FRUITS.

APPLES.

Best twenty varieties, E. S. Hayward, Rochester, Diploma and $4
Second best, Wm. Davidson, Hartwick, Otsego county, ... 2
Best ten varieties, Robert H. Brown, Greece, Monroe county, ... Diploma and 3
Second best, W. Ives, Watertown, ... Thomas and 1
Best dish of apples (Northern spy), James H. Watts, Rochester, ... S. S. medal.
E. S. Hayward, Rochester, specimens of currant wine and Isabella grape wine, ... S. S. medal.

POTATOES, &c.

First premium, on one acre, 318 bushels, quantity, Peter Crispell, Jr., Hurley, Ulster county, ... $8
First premium on table potatoes, quality, D. A. Bulkeley, Williamstown, Mass., ... 8
Best acre timothy seed, Douw Van Vechten, Fonda, Montgomery county, three bushels twenty-eight quarts to the acre, 5
Clover seed, first premium, two bushels ten quarts to the acre, Douw Van Vechten, ... 5

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Best acre of broom corn, E. Cheesebro, Cumberland, Albany,.

E. Cheesebro, for corn brooms,.....Volume of Transac

BUTTER AND CHEESE.

CHEESE.

First premium to J. Ives, Hounsfield, Jefferson county
Silver cup, valued a

Second do , E. F. Carter, Le Ray, Jefferson county,.....
Silver cup, valued a

J. D. & H. Cary, a discretionary premium, recommended,..
Volume of Transac

BUTTER.

First premium to Noah Hitchcock, Homer, Cortland county
Silver cup, valued a

Second do. to Jonas Lasher, Quaker Springs, Saratoga county,.....Silver cup, valued a

Third do. to Joseph Daniels, Greenfield, Saratoga county,..

Discretionary premium, to Abram M. Haight, New Lebanon
Volume of Transac

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